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ABSTRACT

This is the report of the 1968 annual conference of the Western Association of Graduate Schools. The major theme of the conference was planning for graduate education in the 70's. The first session of the conference presented addresses by deans of the represented colleges in which problems and plans in the future of graduate education were discussed. The second general session dealt with the innovations and changes to be expected and the important elements in planning in the academic disciplines and professional schools. The third session was concerned with planning for the admission and care of graduate students, as well as addresses more specifically focused on student environment, prediction of academic success, and the future of graduate fellowships. Speeches presented in the fourth session provided a review and evaluation of current programs, degree requirement rules and procedures; the fifth session dealt with the future administrative organization of the graduate school. The sixth and final session was a business meeting at which new officers were elected and various resolutions made. (HS)

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WESTERN ASSOCIATION OF GRADUATE SCHOOLS

PROCEEDINGS OF THE TENTH ANNUAL MEETING

March 4-5, 1968

Denver, Colorado

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WESTERN ASSOCIATION OF GRADUATE SCHOOLS

PROCEEDINGS OF THE
TENTH ANNUAL MEETING

CONFERENCE THEME: PLANNING FOR GRADUATE EDUCATION IN THE SEVENTIES

> *"Though the day-to-day activities of the Graduate Dean present many problems--some even a bit interesting--his main concern should be with the long-term development of graduate work not only in his university but everywhere. The past records both his mistakes and his triumphs, the present is a mere instant for quick adjustments, but the future--especially the "distant" one beginning five years from now--lies waiting to embody the results of his planning, or of his failure to plan."* Anonymous 1968.

March 4-5, 1968
Denver, Colorado

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May 1968

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ATTENDEES AT THE TENTH ANNUAL MEETING
OF
WESTERN ASSOCIATION OF GRADUATE SCHOOLS

Denver, Colorado
March 4-5, 1968

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LUCKI, Emil, *Dean, Graduate Studies, San Fernando Valley State College, Northridge*

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MOYE, Anthony J., *Dir. Research & Govt. Relations, California State College, LA*

NEVE, Richard A., *Dean of Graduate Studies, Central Washington State College*

O'BRIEN, Thomas D., *Dean, Graduate School, University of Nevada*

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RICE, Philip M., *Dean of Graduate School, Claremont Graduate School*

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RYAN, Rev. Harold F., S.J., *Dean, Graduate Division, Loyola University of LA*

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WHITAKER, Virgil K., *Graduate Dean, Stanford University*

WHITFIELD, Raymond P., *Graduate Dean, Eastern Washington State College*

WILKENING, Marvin H., *Dean of Graduate Studies, New Mexico Tech*

WOOTTON, Donald M., *Dean, Graduate Studies, Chico State College*

MONDAY, MARCH 4, 1968

OPENING OF MEETING: *Wesley P. Lloyd, President*

WELCOMING REMARKS: *Maurice D. Mitchell, Chancellor*
University of Denver

FIRST GENERAL SESSION

THEME: *"Deans View the Seventies: Problems and Plans"*

PRESIDING: *A. Raymond Jordan, Colorado School of Mines*

ADDRESS: DEANS VIEW THE SEVENTIES: PROBLEMS AND PLANS!

by: Emil Lucki
San Fernando State College

In these uncertain times it is difficult to look into the future and discern what problems will beset this country's graduate schools and to seek solutions for them. If the war should continue much longer and escalate with ever increasing call for man power, our universities might well have only the old and the maimed veteran; for the rest of us will be in military service of one sort or another and in industry. If peace should come tomorrow or the day after, our schools will be flooded with veterans; and, for want of a better term, with WPA students. Clearly, the problems will not be the same. Logic would dictate, therefore, that those responsible for administering our higher education should plan for both eventualities. I do not intend to do so; I will take the optimistic view that the present conflict will end before long and explore the resulting impact. However, in view of the fact that I am the only member on this panel who comes from a state college, I will focus my attention on the problems that are likely to beset state colleges, that is, schools which for the most part do not yet have doctoral programs.

Recognizing that there has been a great increase in graduate enrollments in the past ten years, and adding to this the influx of veterans and of the federally supported "disadvantaged" students, which will undoubtedly come, and the influx of students that will result if education through the fourteenth grade becomes mandatory, as some forecast, the graduate enrollments will rise substantially, perhaps, as Conant estimated in last year's Educational Record, doubling by 1980. What problems will this generate for the state colleges?

The first problem, obviously, will be how to accommodate this expected increase in the face of inadequate funding of graduate study. Some departments are already curtailing admissions by raising admission requirements because they cannot get the staffing they deem necessary, and all departments are protesting that they have been carrying the masters' programs on the cuff for too long already, and both practices will mount as the pressures of the influx increase. But curtailment of admissions will not produce the necessary masters, neither terminal masters nor the masters who go on for the doctorate, and is contrary to the statutory provision which provides conditional admission to all holders of bachelor's degrees from accredited schools. An impasse might, therefore, be expected unless increased graduate level funding is provided. I believe that enlightened opinion, both on the part of the legislatures and the college faculties, will prevail, and that there will be funding of the graduate studies at a tolerable level.

The second problem which is also already upon us and which has been ventilated at the conferences of the Council of Graduate Schools in the U.S.A., namely, the issue of a second doctorate, will be getting the authorization to offer the doctorate and what kind of doctorate.

Since the increasing enrollments already make it difficult to find instructors with the doctorate, any further increases in college enrollments will aggravate the shortage to the point that national interest will necessitate a substantial expansion of doctoral programs. Establishment of more universities will not solve the immediate problem, for it takes several years to plan and fund a university, to build the plant, hire the staff, and attract enough students to offer a viable doctoral program. This is well evidenced by the situation at La Jolla, Irvine, and even Riverside. Common sense will, therefore, dictate that state colleges with existing plants and staff and thousands of masters' candidates be authorized to offer the programs. Such colleges can begin to produce Ph.D.'s in three or four years, especially in the low cost programs, such as, education, economics, English, geography, mathematics, history, psychology, sociology, business administration, etc. The interest of higher education in the nation simply cannot permit an unconsionable delay in authorizing this function to the state colleges.

Granted, then, that the doctorate will come to the state colleges, the resulting problem that will face them and other university graduate schools, for that matter, will be the nature of the doctorate, a regular Ph.D. or some sort of watered down Ph.D. Here the opinion will be divided; but the state colleges will not be satisfied with a second class degree, if that is what they will be offered, for the simple reason that many of their faculty members are young, aggressive, ambitious, and every bit as competent and as productive as their university bretheren. Besides, it would not be in the interest of higher education to produce anything but the best prepared Ph.D.'s. However, I might add parenthetically, that by the best prepared Ph.D. I do not necessarily mean a Ph.D. that requires the longest time to prepare. In fact there is a move to explore the possibility of reducing the time for preparing doctoral candidates. The colleges might well take advantage of this move and press their sister universities to join with them in trying to develop doctoral programs that are solid and yet of shorter duration.

These two problems, getting the doctorate and the kind of doctorate, will clearly involve the state legislatures and the universities as well as the colleges. There will be cries that the financial burdens will be unbearable and that there will be competition for the graduate dollar. But I feel that at most these alarums will only delay the authorization for a year or two and that eventually concern for the common good will prevail and the colleges will receive the authorization. If doctoral programs contribute to the advancement of knowledge and are beneficial to the nation, it will be hard to maintain the argument that utilizing the state colleges to help produce the Ph.D.'s will not be in the interest of higher education or of the nation.

Enlightened opinion, it seems to me, would dictate that the two sister institutions should join in this high enterprise whether it be in joint doctorates, separate doctorates, or both rather than engage in rivalry for public favor. The frontiers of knowledge are so vast that there is room for all of us to participate in the exploration.

But having obtained this high mission, the state colleges will be faced with problems arising from its implementation, albeit under the watchful eyes of the accrediting agencies.

One of these problems will be to determine which departments are most ready to offer the Ph.D., as there will be departments which will try to rush into the doctorates. This will require setting up acceptable standards as to faculty, library holdings, lab facilities, etc., and the will on the part of the administration to say "no" when that is the proper response, but at the same time to help prepare such departments for the task as quickly as possible without jeopardizing the undergraduate services of the college. This will not be easy and will require much wisdom on the part of the administration and faculty; but, irrespective of the difficulties, the problem will be solved, and it will be solved without jeopardy to the doctoral programs.

Another problem will be how to keep the costs down, for the doctoral programs are expensive even in the so-called low-cost disciplines. The big schools have been covering some of these costs by having large lower division classes, sometimes numbering hundreds and even thousands of students, and by using low-cost teachers, namely, teaching assistants. The state colleges will not be able to hold on to their ideally small lower division classes of 30 or 40 students and service the doctoral programs at the same time without raising per capita costs to prohibitive levels. Legislatures will not appropriate the funds--in fact, they are already scaling down our demands and they will continue to do so even with a heavier hand. So when the state colleges embark on the doctorate, they will have to find ways of cutting per capita costs at the undergraduate level. There are several ways which can be tried.

One way would be to streamline the administration. Instead of insisting on the present formula, which allows one administrator for every 25 faculty members, we can well afford to raise the ratio without sacrificing efficiency. We might try replacing some of the administrative officers, some of whose work is of a routine nature, with administrative assistants at considerable savings. Also, we might try to combine some administrative functions and return the eliminated administrative officers to teaching duties. If we don't know which offices to combine, I am sure the faculty can provide us with suggestions; all we need to do is put our ear to the ground and listen to the faculty complaints about overstaffing at the administrative level.

Another way would be to economize on capital outlay. We call for more and more class rooms, but we have not given any thought to the practice common in big industry, namely, operation of two shifts. What would be wrong with trying to run one shift from 7 A.M. to 2 P.M. and another from 2 P.M. to 9 P.M.? If the students do not voluntarily distribute themselves about equally between the shifts, we can try to secure equalization by requiring each student to alternate his shift, one year in the day shift and another in the evening. Or perhaps a less radical solution might be to add Saturday as a teaching day and divide the students into two day shifts, one on Monday, Wednesday, Friday, and another on Tuesday, Thursday, Saturday. Either way we could use our plant more efficiently and need less class room space and fewer study rooms in the library. At the same time the shortage of office space would be reduced. The same office could be used by two men without the inconvenience presently created by the sharing of offices simultaneously because both men teach on the same shift, 8 A.M. to 3 P.M.

Still another way would be to revise the requirements for the Bachelor's with the view of shortening the time students now spend to complete their degree. Why can't we learn from Baskin that independent study can be opened to most students and allow them to challenge a certain number of courses by examination, say, one course for every four or five courses per semester? Not only would this reduce the time to earn the degree by about two semesters and save on the teaching man power, but it would force the student to learn the material rather than to be taught the material. In fact we teach too much and relieve the student of the primary purpose of higher education, namely, to learn for himself. It is time we returned some of the responsibility to the student himself.

Finally, we will have to yield on the matter of class size. We cannot continue to offer up to thirty sections of the same course simply because we want no more than 30 or 40 students in a class, and especially in the face of evidence that the end results in large classes are as good as the results in the smaller classes. We--and when I say "we", I mean the faculty--we will, therefore, have to adopt larger classes; we will need to use closed circuit television, and perhaps even experiment with linking several colleges in the same metropolitan area.

These are just a few suggestions of what the state colleges can do to reduce the per capita costs. There are others, I am sure, but these are enough to illustrate what can be done. If the state colleges do so, they can hope to have more money and reduced loads to enable the faculty to conduct graduate studies more effectively, both the masters' and the doctoral, and to find more time to conduct research. I believe all this will come about, but we will have to help to bring this about.

I do not wish to be a prophet of doom, but I feel compelled to say that if we fail to do our part in lowering the financial burden, we might provoke a reaction comparable to the reaction that the fifteenth century church drew upon itself. The fifteenth century church, you will recall, was an Establishment, in fact the Establishment. It had its hierarchy, its vast monuments, its rights and privileges, and it considered itself indispensable. It needed endless financial support to sustain itself, and it never relaxed on its demands for that support, and it never seriously considered the possible effects of its persistence on the public. The result we know: in many parts of Europe the people and the state disestablished it. I would hope that we would learn a lesson from this and do our best to prevent a similar disenchantment with higher education. For in the present temper of the American taxpayer, it would not take many reiterations of General Hershey's statement "that not all teachers need to have a Ph.D., and that Thomas Edison and Henry Ford 'did a lot' with almost no formal education" to arouse the public against us. If we do not want this to happen, and at the same time if we want the doctorate, we will have to be our own best friends by extending a helping hand to the burdened taxpayer.

ADDRESS: DEANS VIEW THE SEVENTIES: PROBLEMS AND PLANS

by: Joseph L. McCarthy
University of Washington

(The tape recorder failed during the presentation by Dean McCarthy. The following is a brief résumé taken from the Secretary's notes.)

Dean McCarthy identified four problems facing the Deans as graduate schools move into the seventies.

1. There is need for more specific definitions of graduate programs in terms of objectives rather than in terms of degrees and time intervals.
2. There is a need for identification and maintenance of quality in graduate programs with especial concern for quality of faculty, library resources and students accepted. It was explained that quality of output in this instance is closely related to quality of input of students, faculty and research.
3. There is need for careful consideration of size of a program and for determination of optimum size without jeopardizing quality. This is one of the most serious problems of the future.
4. There is need for adequate financing from the four prime sources: private, religious, state and federal, with a clear understanding that student-faculty ratios of 20 to 1 at the undergraduate level cannot apply at the graduate level. More realistic student-faculty ratios here may be 6 to 1 or even 4 to 1.

ADDRESS: NOTES TOWARD THE FUTURE OF GRADUATE EDUCATION

by: William J. Burke
Arizona State University

In a remarkably perceptive analysis of American democracy early in the nineteenth century, Alexis de Tocqueville noted a great faith in the possibilities for human perfectibility on a broad scale. This concept has played an important role in encouraging steadily increasing support for education at all levels as a means of meeting the growing needs of our rapidly changing society. In the past twenty years greatly increased emphasis has been placed on graduate education. In the next decade we can expect an even more rapid acceleration of this trend.

This is not to say the remarkable development of education in the United States has proceeded smoothly, for clearly it has not, and fortunately graduate education has had its share of criticism, both in and out of the fraternity.

I say fortunately, for I am reminded of Robert Burns' observation:

> O wad some Power the giftie gie us
> To see oursels as ithers see us!
> It wad frae monie a blunder free us,
> An' foolish notion:
> What airs in dress an' gait wad lea'e us,
> An' ev'n devotion!

Some of the criticism has been vitriolic and much of it irrelevant or unwarranted. To address myself at this time to all or even many aspects of the real and alleged shortcomings of graduate education would be presumptuous and, of course, impossible. Instead my remarks will be confined to a few areas, which, in my judgment, merit our considered attention.

In the period following World War II, the development of research programs in universities, particularly in the natural sciences, medicine and engineering, has been greatly enhanced by grants and contracts awarded to individual faculty members. It is estimated that two-thirds of the support for university research comes from federal sources and about 90% of these funds are from mission oriented agencies.

While few question the quality of results obtained through the individual project system, there is increasing concern for the long range effect this will have on the ability of universities to maintain control of their programs so that they may function as independent centers of creative thought in our society. The plea is made that universities should determine their own educational and research objectives without undue influence from mission oriented federal agencies.

There are clear indications of growing favor for massive federal support for education and research through institutional grants. The National Science Foundation through its science development program is currently doing this in a limited number of institutions with the objective of substantially improving research in the sciences, on either a departmental or university wide basis.

As you know a bill (HR 875) introduced last year by Representative Miller of California called for an annual appropriation of $150,000,000 for institutional grants for higher education to promote research in the natural and social sciences and engineering. Such a program, viewed as a supplement to and not a replacement for the individual grant and contract system, would greatly facilitate orderly long range planning for the development and expansion of research and educational programs on a university wide basis. Problems arising from withdrawal of project support, concentration of funds in certain areas, and inadequate research support for new faculty would be reduced if not eliminated by such an approach.

Most of the present university funds in Britain come from block government grants, with relatively little but growing support from project grants. It seems probable that in the United States the reverse pattern will emerge over the next several years with the increase in federal funding of universities coming more from institutional rather than project grants. Interestingly enough, a portion of institutional grants may in some cases result in projects grants awarded through university grants or research committees, which are currently active now on many campuses but with limited funds.

In a paper presented at the San Francisco meeting of this association in 1965, Dean Virgil Whitaker pointed out clearly the advantages of having the graduate dean function as part of the central administration in order to provide for effective participation in such vital activities as faculty selection and promotion, departmental and college budgeting, and in formulating policies concerning research grants and contracts. The involvement of the graduate dean in the development of university-wide policy will become even more important with the anticipated growth of federal support through institutional grants.

The very limited federal support for research in the social sciences has increased slowly over the past several years. However, there is a growing intensity of critical social problems including international conflicts, race relations, poverty, urban renewal, health, unemployment, transportation, and air and water pollution. Continued major advances in computer technology can be expected to make much of the highly complex research in the social sciences more amenable to treatment in the future. Since the American society is a highly pragmatic one, we can expect action now that the existence of crises in these vital areas has been more than amply demonstrated.

Hearings have been held on the bill introduced by Senator Harris of Oklahoma to create a national foundation for the social sciences. But whether the necessary support comes from this source, or through the National Science Foundation or through some version of the Miller bill for institutional grants, or in some other way, it will come. Much uninformed criticism has been leveled at support for specific projects in the natural sciences with seemingly esoteric titles. We can all well imagine the horror and righteous indignation which will be forthcoming when some of our imaginative friends in social science have their turn. Support through institutional grants would eliminate some of this, but, of course, the major advantages of this approach would be the planned and coordinated development possible, reduction in paper work, and long range support for programs rather than for isolated projects.

Library development will continue to be a major concern for all colleges and universities but an especially critical problem for institutions with rapidly growing and expanding graduate programs, particularly at the doctoral level. Important decisions must be made regarding the selection of back series of periodicals, journals, and reference works to say nothing of obtaining the necessary funds and locating many of the required items.

The flood of new journals, books and publications in general is already upon us with no sign of relief ahead. In the March 1, 1968 issue of TIME magazine, with this situation in mind, the well known sociologist Nevitt Sanford predicted that before the end of this century "the most prestigious colleges and universities will forbid their professors to publish until they have been on the faculty for five or even ten years." This sounds like a switch to "Publish and Perish" but I trust that the academic community will not have gone completely mad within such a relatively short period after the departure of many of us from the scene.

But back to the library--how can it be made really effective for creative work with the limited resources we will have. One way certainly will involve a much greater degree of cooperation of local, regional, state and national libraries. Title III of the Library Services and Construction Act has provisions for encouraging increased and improved interlibrary cooperation under a state plan. In Arizona under this act the three state universities, the public libraries in Phoenix and Tucson and the state library have joined together in a proposal which calls for a review of the periodical holdings in the cooperating libraries with a view to assigning to individual institutions major responsibility for the development of certain areas. While progress along this line is encouraging, it represents only a small start toward what must be accomplished if adequate library resources are to be provided.

Organizations such as Chemical Abstracts continue to make increasingly valuable contributions in specialized areas. Another example is the Inter-University Consortium for Political Research at the University of Michigan, which has available for quick reference a wealth of statistical data in political science. More thought and study need to be given to possibilities for further cooperative efforts along these lines.

Information on all new acquisitions at the Library of Congress is being put on tape. Certainly within the seventies, data on all of the major library holdings should be made available on a regional basis, so that a console on a university campus can get the desired information quickly. Interlibrary cooperation on all fronts, plus the willingness of capable faculty members in all disciplines to work for sound library development in their own institutions, plus imaginative planning and research on a national and even world wide scale are essential.

The general subject of graduate teaching assistants has received considerable attention in recent years. The pronounced expansion in graduate programs together with the rapid increase in undergraduate enrollments have led to general recognition of the prime importance of graduate teaching assistants to the total university program.

Many popular articles on higher education over the past several years give the impression that much of the undergraduate teaching in many large universities is done by graduate teaching assistants--and usually with less than satisfactory results. While serious studies have shown that graduate students more often than not do a creditable job of teaching, there is also general agreement that the system of using TA's presents one of the major problems facing universities today.

A recent comprehensive report on teaching assistants by Koen and Erikson of the University of Michigan covered 42 representative major universities, including site visits to 20 and structured interviews with 105 department chairmen and TA supervisors. Data were collected from 136 representative departments and 10 professional schools. This study showed that many institutions are concerned and are ready for constructive action. Two major factors were found to inhibit the development of effective programs: (1) "the lack of broad-based faculty interest in the training-supervision role and" (2) "the shortage of available staff time for the demanding task of developing highly competent teachers from the graduate student body."

Considerable attention was also given to TA's in Education at Berkeley, Report of the Select Committee on Education, March 1966. The report concluded that, properly conceived, the TA system for the instruction of undergraduates "is educationally sound and organizationally indispensible." It was noted, however, that the TA system is a major problem, with inadequate training for the TA's and insufficient benefit for the TA's from the experience.

The Berkeley report specifically recommended that: (1) Teaching potential should be a major criterion in selection of TA's; (2) There should be regular meetings between professors and TA's; (3) A climate of professional respect for TA's should be fostered; (4) Stipends for TA's should be high enough to attract the ablest candidates; (5) All graduate students should be allowed to participate in undergraduate teaching appropriate to their skills.

The Berkeley recommendations are sound and should be implemented widely at the earliest possible time. Hopefully by the early seventies major improvements in the instruction by and training of TA's can be effected. If we are really serious about improving undergraduate instruction in universities, an investment in the TA system could yield handsome returns not only of improved instruction now but as a source of future faculty members who are highly competent teachers. The remedy is clear. If we wish the TA system to prosper, we should find ways to honor and reward those who make it successful.

In the final analysis what happens to the individual graduate student must be a major concern of all those responsible for graduate education. The students should be selected with care and provided an environment which will stimulate and encourage their intellectual development and whet their appetite for future scholarly endeavors. This calls for an agonizing reappraisal of our procedures and the elimination of trivia. Hopefully through sound innovation, creative insight, and practiced flexibility, the future will provide the resources and experiences to meet the needs of the individual student and graduate education generally.

ADDRESS: A DEAN VIEWS THE SEVENTIES: PROBLEMS AND PLANS

by: Milton C. Kloetzel
University of Southern California

In discussing some of the problems to be faced in the coming decade, let me begin with the fundamental problem of merely keeping graduate education afloat. The prospect of maintaining viable graduate programs in the face of expansing enrollments, rising faculty salaries, increasing administrative expense, growing sophistication and obsolescence of costly research equipment, and burgeoning information storage and retrieval needs, is not a happy one. For a private institution without state subsidy and, in most instances, without adequate endowment, the outlook is particularly discouraging. Danger signals are appearing on many a campus once thought to be firmly established.

The most elementary institutional research readily demonstrates that graduate and advanced professional programs are those most likely to place an institution in financial jeopardy. Postdoctoral study, notwithstanding all of its obvious benefits to both student and institution, compounds the problem. Rearrangement of tuition schedules cannot mitigate these circumstances. It is a safe prediction that this problem will be one of our major challenges in the years just ahead.

In 1960, the United States President's Science Advisory Committee anticipated this situation when it recommended that all parts of the national community should assume a greater responsibility for supporting, strengthening, and expanding basic research and graduate education. It will be necessary for universities to stimulate more effective corporate giving, to engage in more imaginative cooperative programs with business and industry, and to make clear the necessity for more realistic Federal funding. The healthy trend toward a system of institutional or block grants from Federal agencies should be encouraged at every opportunity. This form of support will enable educational institutions to regain their autonomy and faculty loyalties. If the concept of institutional awards could be more widely adopted and broadened, it might even be possible to mend faculty cleavages that have resulted from years of support given on too personal a level and with disciplinary favoritism. Support still needs to be stabilized and assured for longer periods of time, to permit universities to establish more stable and equitable relations with research employees.

But many economies can be effected by educational institutions themselves. It is not necessary for an institution to be all things to all people. Few institutions are so isolated that they could not benefit from agreements with neighbor institutions to develop unique programs. In other instances the development of cooperative programs would constitute wise conservation of educational resources. Such programs need not be limited to academic institutions but might well include cooperative undertakings with business, industrial or research organizations. It is not even necessary that cooperating institutions be near each other. Students might well benefit from a period of residence and study at each of two widely separated institutions, particularly when the area of study bears a direct relationship to the community, as in the social sciences.

The consortium provides still another device we are finding useful when the development of facilities would otherwise be prohibitively expensive. Arrangements for joint use of nuclear physics and marine science installations already have proved their value. Extension of the concept to libraries, information retrieval systems and perhaps other areas appears to offer a welcome alternative to bankruptcy.

It would of course be highly misleading to give the impression that all, or even most, imminent challenges to our universities will result from financial considerations. The tenor of the times constitutes at least as powerful a stimulus. It is unlikely that any university can remain much longer isolated from society and the community--if, indeed, any exists in that condition even today.

Since the second World War, universities have demonstrated their power to bring about change. Spectacular scientific discoveries and technological developments have followed each other in rapid succession. Society has become aware that research pays dividends and is asking that the attention and the intellectual resources of our universities now be directed toward the solution of our major social, economic and political problems. The mood of the American people and of the government is not what it was in 1918 or in 1945. Following the resolution of the Vietnamese crisis, it seems likely that massive Federal support will supplement the foundation support already available for community-oriented programs of research and development. As a result, we should prepare to see social science research rise to new levels of magnitude and sophistication.

The stage is already set. To be persuaded one need only note the discussions of the trustees of the Carnegie Foundation for the Advancement of Teaching, concerning the role of the university in the service of society; or listen to the pleas of the U.S. Commissioner of Education for more university participation in the battle for survival of our cities; or ponder the concern that has been expressed by many Federal officials for the unsatisfactory state of social science research, and the possible consequences of the staff study prepared for the House Research and Technical Programs Subcommittee, which describes Federally financed social research to be too often trivial, irrelevant, uncoordinated, and on too small a scale. When properly funded, the International Education Act will also provide strong impetus.

Urban universities, in particular, will find increasing riches in their own back yards as they recognize that their surrounding communities can serve as priceless, ready-made social laboratories the universities could not otherwise affort to develop. Almost every phase of the city's cultural, social, economic, transportation, business, political, and health related activities can give enrichment to the education of both graduate and undergraduate students. A semester properly spend in such a laboratory could be a valuable supplement to a student's experience in the more traditional classroom.

Some of the problems we shall have to face are of our own making as academicians. For example, we have spent several decades splintering and subdividing higher education into what have become the traditional disciplines or areas of specialization. It is now important that we undo this compartmentalization of knowledge, that we blur the boundaries, and reduce departmental possessiveness, lest our scholarship become sterile.

An institution can, for one thing, plan part of its building program in such a way as to produce physical contiguity of scholars in different disciplines. It can also establish problem-oriented curricula and research units to supplement the traditional disciplinary organization of the campus. And, perhaps most effectively, it can permit greater flexibility in advanced degree requirements, allowing students themselves to hurdle the departmental fences and combine subjects in novel ways. Doctoral programs are increasingly being called upon to produce individuals who will be able to conduct research in the borderline areas of conventional fields of study, a task which cannot be accomplished if rigid adherence to disciplinary lines is maintained.

It may be argued that a period of specialization has been necessary in higher education in order to develop research methodology to a productive degree of sophistication. But it is obvious today that an exciting and fruitful frontier of knowledge and research lies at the disciplinary interface. And although there are good reasons to pursue pure research without regard for the direction it may lead, there are equally valid reasons to apply the research methods of several disciplines to a problem in obvious need of solution. Where strong departments pool their talents in the attempt to solve problems which transcend their particular specializations, the potential exists for truly creative effort.

Several problems arise from the pressures of increasing enrollments and increasing demand for higher education. As these pressures rise, it becomes increasingly important that we have available truly discriminating admissions and screening tests. There still seems to exist no very good predictor of success in graduate study. The tragic consequences of this become evident when one considers, on the one hand, the great expense of graduate education and, on the other, the great amount of frustration and loss of valuable time on the part of students who attempt unsuccessfully to obtain a Ph.D.

It is reasonable to ask whether the fault lies more with the insufficiency of testing instruments or with the character of graduate programs themselves. There is obvious need for further investigation of both.

The Graduate Record Examination Board was formed in 1966 to review and improve the Graduate Record Examinations Program in relation to its use for admission to graduate school and for the award of graduate fellowships and scholarships. More specifically, the Board is attempting to catalyze the development of better tests to measure motivation, originality, independent thinking and productivity potential. These factors are commonly considered to be associated with success in graduate study. But if, in fact, there exists little correlation between these factors and success in the graduate program of a specific department or institution, the predictive effort is bound to fail through no fault of the testing instrument itself. In this instance the legitimacy of the graduate program is suspect. One challenge for the next decade, and those to follow, will be to re-evaluate our graduate programs to determine whether they are truly achieving stated goals.

This challenge applies equally to the many new graduate programs being initiated throughout the country. Expanding enrollments and faculty pressures are resulting in rapid upgrading of state colleges to university status. In some instances this is occurring in the face of limited resources, giving rise to serious concern on the part of professional organizations for the quality of the new graduate programs. Two years ago, a joint committee composed of representatives of the Federation of Regional Accrediting Commissions of Higher Education, the National Commission on Accrediting, and the Council of Graduate Schools met to draft resolutions regarding accreditation of graduate work, particularly doctoral level work. The overwhelming opinion is that if graduate accreditation is to occur, it must be done by a professional organization representative of the institutions being accredited. However, the possibility that graduate accreditation activities must be undertaken at all will be disturbing to some. At best, this will become an annoying issue in the near future.

No discussion of graduate school problems would be complete without some mention of college teacher shortages. A few years ago there was an attempt to make scapegoats of American graduate schools, in view of a predicted shortage of college teachers and the supposed "decline of liberal education." There have been such shortages but they can as well be blamed on Selective Service practices during World War II and during the Korean War. In fact, we face the prospect of a third shortage in the future, and for the same reason, unless Selective Service Boards adopt a more enlightened attitude toward graduate students in the so-called "non-essential" areas than they have so far been directed to adopt.

This is not to say that all graduate schools do give adequate attention to the preparation of college teachers. Many faculty do not even admit the importance of doing so. And many devices await serious trial and evaluation, including the supervised teaching internship as a parallel to the research postdoctoral.

We must, however, guard against the temptation of meeting the need for more teachers by producing more poorly prepared teachers. Special degrees with truncated requirements, which would attract the least able students, are not the andwer to a teacher shortage. There are those who believe that a shortage can be averted if only we will change the requirements for the Ph.D.--that is, lower them by granting, for potential teachers, a doctorate that does not require research experience. The unfortunate consequence of such an action would be that large numbers of able students would be receiving their undergraduate education from teachers whose preparation suffered from this deficiency. A teacher who has not had research experience does not really know how knowledge is discovered. He has no real feeling for intellectual heritage--how each investigator builds on the work of his predecessors. A teacher who does not do active research cannot create enthusiasm for research in others; nor can he impart the feeling that scholarship and research are important. Yet this feeling must be imparted during undergraduate days if there is to be adequate recruitment for graduate study.

In assessing the problems we shall face on our campuses in the next decade, it would be unwise to ignore the restive spirit that already exists. Students are increasingly ready to protest the decisions of faculty and administration, even to the extent of contesting examination results through legal action. We are ourselves at least partially to blame. We have allowed doctoral programs to remain unnecessarily amorphous. The time of required study is unpredictable and usually not stipulated. Treatment of students varies with department and committee chairman, and is not always considerate. In short, the conditions of graduate study need to be more clearly defined and administered.

Faculty too are reacting badly, in many instances at least partially out of frustration at the ever increasing number of government regulations that appear so alien to academic life and seem to set intolerable limits on their personal freedom. The ridiculous attempt to equate research results with work hours is but one example. Incipient animosity toward administration is thereby activated and more than one otherwise normal faculty member has, in this manner, been tempted into preoccupation with university "governance."

Because of their idealistic proclivities, both students and faculty feel the urge to participate in social action movements. The resulting misunderstandings between school and community can have a direct effect on the welfare of the institution, for example when budgetary allocations are sought.

What if anything can be done to decrease the disturbance of our campuses is not clear. What is clear is that we must learn to conduct our academic affairs in an atmosphere of tension we have not heretofore experienced. The "ivory tower" into which I, for one, was propelled a short thirty years ago has long since disappeared.

SECOND GENERAL SESSION

THEME: "Academic Disciplines and Professional Schools View the Seventies: Innovations and Changes to be Expected, Important Elements in Planning"

PRESIDING: Wendell H. Bragonier, Colorado State University

ADDRESS: MEDICAL SCHOOLS VIEW THE SEVENTIES

by: Ralph W. Gerard
University of California, Irvine

Cyril Houle, in a recent study of continuing professional education (Perspectives in Biol. & Med. 11:37-51, 1967), neatly epigrams an attitude in which we all concur: "If you teach a person what to learn, you are preparing him for the past. If you teach him how to learn, you are preparing him for the future." This is not easy to do--prepare for the future; and it perhaps includes some "what" as well as "how"; but the "what" changes in emphasis and content with time--so, mostly, it must be picked up as needed during the career line. He goes on to say:

> "The voice of the aggrieved alumnus is always loud in the land and, no matter what the profession, the burden of complaint is the same. In the first five years after graduation, alumni say that they should have been taught more practical techniques. In the next five years, they say they should have been given more basic theory. In the tenth to fifteenth years, they inform the faculty that they should have been taught more about administration or about their relations with their co-workers and subordinates. In the subsequent five years, they condemn the failure of their professors to put the profession in its larger historical, social, and economic contexts. After the twentieth year, they insist that they should have been given a broader orientation to all knowledge, scientific and humane. Sometime after that, they stop giving advice; the university has deteriorated so badly since they left that it is beyond hope." (p. 42).

As someone else said, "The road to the future is always under construction". Or, as the story has it of the new arrival in Heaven: he asked for happiness, love, wisdom, etc., and was told, "Even in Heaven we only supply seeds, you must cultivate them to fruit." Worker's in their professional orchards need all the help they can get. Let me now restrict my comments to medicine (and parenthetically the allied health areas), although such new professions as engineering are skyrocketing past the established ones; and total professionals have increased relative to population five fold in 60 years, as compared to a little more than doubling for all labor. All present comparable problems. Medicine, incidentally, introduced the internship to bring learning into the "real world"--a rapidly spreading device.

The community is unhappy with medicine. Despite spending 6% of our GNP (some $35 billion)--a higher percent than any other nation--on the health system, the U. S. ranks 15th in infant mortality (5th in 1950), 13th in life expectancy, 16th in hospital beds per capita and 8th in physicians. Average care (not our best care, which leads the world) is falling, despite great increases in cost, and especially cost in education. This year medical education will surely cost the nation some billion dollars ($700 million in 1965), as compared with $12 million in 1925. Each first year medical student now takes about a half million in plant and perhaps $5,000 per year in running expenses--the average medical school, with 100 freshmen and 400 pre-M.D.'s (and a like number of post M.D.'s in house staff and research) costs $50 million to build and $8 million annually to run. (Gerard, 1967 preprint).

The quality of practice by the individual physician is enormously variable and bears little relationship to the cost or quality of his medical school and house staff experience (or to his academic excellence). Many with poor training improve in service; alas, many more deteriorate, despite a good launching, and become intellectual and professional drop outs. Four years out of training, practice doesn't correlate with any past item. This is due in part, surely, to the accelerating growth of knowledge and some attendant feeling of hopelessness in keeping up--unlike the red queen in Alice, even running as hard as they can, they cannot remain in the same place. Partly, the failure to stay abreast is due to failure, during the critical learning years--say to 21--to acquire a taste for intellectual activities, as distinguished from the application of skills and information. This is contributed to by teaching "what to learn", by didactic and authoritarian impairing of facts. And it is partly due to a growing emphasis on economic goals, as compared to service or humanitarian ones, by many practitioners.

Continuing Education

In any event, the formal university and subsequent in-house training, already lengthened to ten years (2 premedic, 4 medical school, 4 intern and resident) can hardly be stretched further; and yet this is clearly not enough. Flexner's great contribution, over half a century ago, was to tie medical schools back to a broad university base--mainly in biology and the research orientation of science. Now biological and physical sciences are vastly expanded, mathematics and social science have become essential (medicine really differs from veterinary medicine mainly by its great involvement of behavioral science), ethical and other humanistic or societal problems become urgent--and the unconscionably overworked physician has little time or energy to address to all of these, even when he does have a strong inclination to do so. He needs help, desperately, to maintain in-service learning; help in reinforced motivation, in better access to resources, in effective use of time, in pleasant learning experiences, in successful outcomes. Educational institutions and professional associations have long accepted a responsibility to help--by extension, refresher courses, conferences--but are now, in all professions, beginning to take the problem seriously--and are enlisting the aid of new technologies in communication and education. As Beaton wrote in 1965: (J. Med. Educ. 40:276-283), "In the future the physician will no longer be a "graduate", a man who has finished his schooling and served his connection with the medical college. Rather will he be an abiding member of the university and its medical college, continually refreshed by contact with it, continually contributing to its fund of knowledge."

Perhaps the situation, for continuing education and much else, is like that of the ham actor who, shot at the play's climax, put his hand to his chest, looked at it and droned his line, "My God, I'm shot". In desperation, the stage pistol was charged with red ink and, at the next performance, the dull, "My God, I'm shot" was followed, when he noticed the red on his hand, with a startled and convincing, "Jesus Christ, I am shot!"

Technological Aids

What stage props, or better aids to learning do we now have? And are they economically realistic? During the formal schooling period--in college, medical school, and teaching hospital--the learner must go to the "information" (used in the wide sense of any increase in meaningful experience), to the classroom or library or laboratory, to the clinic or consultation room or bedside. This is fairly efficient when student and resources are well grouped in space; it becomes unacceptable when extensive travel to many loci is required--especially with urban traffic. Certainly a great step forward would be to bring the information to the learner. Even during the schooling period this can yield human and economic gains, let alone better learning; and, conversely, some gathering of bodies will always be desirable--preferably at places where doctors find themselves in the course of their practice, as hospitals, group clinics, and medical office buildings, as well as at medical schools and main campuses.

First a brief look at the more formal schooling period. And note, please, that the following is not limited to medical or even professional education. The student's time and often the public's money can be saved by: more coordinated teaching of intellectual blocks of subject matter in place of fragmented courses, with detailed and often duplicated facts--the new UCI medical school has no preclinical departments but course staffs responsible for large blocks of student time; fewer standard laboratory "exercises" and one or two real research experiences instead; larger numbers of students at each school; students' "home base" study carrels, supplied with closed circuit TV, audio and video tapes, computer on-line terminals (permitting user-machine dialogue), ultimately with a fully interactive audio, visual, and teletype two-way capacity so that written or other material can be delivered on demand, and at least audio exchange with instructors and other students is possible. Videotapes of outstanding lectures, laboratory demonstrations, patient interviews and examinations, operations, seminar discussions and the like, should be available on call. "Socratic" computer-aided instruction resources will offer individual tutorial guidance. Live duo or group discussions are possible.

Information Nets

The data bands or human participants for such learning experiences need not, of course, be on a single campus. Tapes are now easily carried from one to another, live two-way video (or one way video with only audio return) is rapidly growing, coded broadcasts to a total area--schools, hospitals, offices--is on the increase. It is a clear progression, then, to in-service or lifelong education for doctors, disseminated from appropriate centers (universities, regional medical centers, as heart, cancer, stroke centers, hospitals, medical association headquarters; or newly created "educational utilities", manned by industry and government as well as academia and piping information into home or office or automobile) and reaching the user as an individual or in a group and with possibilities of individual on-line interaction or local group on-spot interaction.

The technologic resources and the organization skills for all this are rapidly developing. Extensive medical TV programs are on the air; distant on-line terminals connect users and computers across states and from coast to coast; medical education is already being built on information networks in at least two states, with others in the offing; a nation-wide linking of universities through EDUCOM, the Interuniversity Communication Council, for which half a dozen medical schools supplied the impetus, is in active planning; information storing and retrieving networks will one day--I favor the seventies--make library collections available at a distance; all such are developing rapidly.

The Future University

Perhaps all this means that universities will become less essential to in-service education in the future; certainly they will function very differently. But I rather suspect that in a new role they will be more important than ever. In an analysis of lifelong learning possibilities, a joint study by men from the University of California at Irvine and the General Learning Corporation, and participated in by the Irvine Company, Stearns outlined a coherent role of universities (locally or, much better, with a national cooperation) in servicing alumni. The individual doctor, say, can: be given coherent guidance to particular learning materials and their orderly grouping into a curriculum, be reinforced in motivation and have his progress measured, can be guided past difficult hurdles, and helped to reassess goals, can be aided in improving study techniques and in the formation of study groups, and can be guided to actual learning materials or, eventually, be supplied with all these at his convenience when he lives and works.

A last thought on the dissemination of education--and of service. For over a century, since the Morrell Act, our universities have reached out to foster and serve agriculture and the mechanic arts. More recently stations and institutes and organizations to serve the business and engineering and administrative and planning needs of various sectors of society have flourished. In the health area, university owned or affiliated hospitals have spearheaded improved health service and become centers of education and even research.

More and more, medical schools influence, even control, the practices of other health institutions--from VA and county hospitals through regional medical centers, to leading community resources. With growing medical insurance, private and public; with more doctors working in groups, self-organized or employed, and with a chronic shortage, especially of medical academics; with the increased widening, deepening and fragmentation of the required resources of knowledge and equipment, favoring the doctor as a team leader rather than as a lone practitioner; with attention to the psychological and social aspects of illness and its relation to community health in all aspects; with more effective transportation and, especially, communication; with these and other forces for change, the university of the future and its health schools may well come to be a sort of fifth estate, directly, or through coordinated institutions, serving a widened area, prodding health practices onward and helping practitioners keep up with the march.

New technologies and institutions and attitudes will revolutionize all of education, and so all of society. This revolution will perhaps come fastest and most helpfully in the field of health education. I think it will be to the good.

ADDRESS: THE SOCIAL SCIENCES IN THE SEVENTIES: INNOVATIONS AND CHANGES

by: James F. Short, Jr.
Washington State University

I want to organize my thoughts on this important topic around four points relative to the social sciences and, following this, to discuss briefly some implications for administrative planning and specifically for the graduate education enterprise. The four points refer to the following trends now apparent in the social sciences:

1. The breakdown of traditional disciplinary lines.
2. The breakdown (at the research level) of the distinction--often invidious on both sides--between pure and applied aspects of social science.
3. The increasingly comparative nature of the social sciences.
4. The development of interinstitutional facilities and other relationships in the research enterprise (including research training and other aspects of advanced teaching).

I believe each of these trends will continue, and their chief impact will be felt, during the 1970's. The first is the most obvious and in many ways the most far-reaching in its consequences. While the social sciences have lagged behind their brethren in the physical and biological sciences in this respect, it is nevertheless the case that traditional disciplinary lines are being breached with increasing frequency. I note particularly that an emphasis upon explaining behavior is coming to characterize scholars in political science and history who are on the cutting edges of their disciplines. Inevitably this results in breaking down the distinctions between sociology, psychology, and anthropology as these disciplines relate to political science and history. Differences among the traditional behavioral sciences likewise are becoming less distinct, as common problems and methodologies develop.

As an example of this trend I would note my own recent experience as a site visitor for one of our federal granting agencies. I have had the opportunity to visit some of our most distinguished political science departments in conjunction with their applications for support of research training programs. I have been impressed with the degree of sophistication in the behavioral disciplines evidenced by the political scientists and their students with whom I have visited.

There are many reasons for this development. The disciplines are, to begin with, more closely related in subject matter than was apparent from their traditional isolation from one another. Their common concern with objective knowledge and scientific methodology inevitably has led them to similar interests and theories. Computer technology has further strengthened the tendency to common methods. On the behavioral science side, sociology and psychology have become less "pure" and "present oriented" and therefore more concerned with relevant historical matters and with the political and economic contexts of the behavior they have sought to explain. While there is great variation among behavior scientists in this respect, it is unlikely that any respectable sociologist or psychologist would approve the crusty observation attributed to Henry Ford that "history is bunk." For their part, the anthropologists have joined in the study of the present, not only in terms of our "contemporary primitives," but of the most modern and pressing of social problems and contexts.

Anthropology, because of its comparative emphasis, has been characterized as the most "humanizing" of all disciplines. I have noted above that all of the social sciences are becoming increasingly comparative in nature. This development is of enormous importance to the social sciences for it means that the social sciences are becoming less "culture bound." It has been true particularly of the behaviorally oriented disciplines that their theories and their data have often been restricted to the particular culture contexts in which inquiries have been conducted. More and more we are seeing the establishment of cross-cultural research and teaching programs. I believe it is inevitable that these efforts, in the past so haphazard, opportunistic, and almost inadvertent in nature, will become far more systematic and better organized, and that their impact will be far greater.

I believe we can look forward over the next few years to much closer institutional ties involving the social sciences. Again, in this respect the social sciences have lagged behind the physical and biological sciences where powerful research facilities and organizational arrangements for institutional cooperation have become commonplace. These relationships will be necessary for a variety of reasons and they may take many forms. In part because of the breakdown of disciplinary lines and the increasingly comparative nature of the social sciences, for example, it has become necessary to establish field stations in many parts of the world for research and training. It may become necessary to establish the equivalent in the social sciences of national laboratories where special facilities exist, such as those now funded by the Atomic Energy Commission. The existence of national data banks and of periodic national surveys in addition to those now conducted by the United States Bureau of the Census and by the Department of Labor will further encourage, indeed will make necessary, greater institutional cooperation. Dean Burke's reference earlier this morning to the interuniversity consortion for political research at the University of Michigan is an excellent example of this type of interinstitutional relationship.

I have left until last my discussion of the breakdown of the distinctions between pure and applied aspects of social science. This has been a particularly difficult distinction for social scientists because of the long struggle for scientific maturity and stature of these disciplines. The distinction has been marked by vindictiveness on the part of both sides to the dispute. More recently, however, the presumptiveness of the "purists" and the ideological narrowness of the "applieds" appears to be giving way as the necessity of each to learn from the other has become apparent. If behavior scientists are to understand and develop knowledge concerning human behavior, it is clear that they must involve themselves in research involving social action, as one--though certainly not the only--important research context. Applied social scientists provide appropriate contexts for much valuable research, and even experimentation of great value, for those whose interests are purely scientific.

This trend (not so incidentally) is not at all inconsistent with the quite valid distinction made by our colleague Dean McCarthy between preparation for professional practice on the one hand and for scholarly work on the other. What it means is simply that the two emphases are becoming more relevant for one another as they have long been among the physical, biological, engineering, and medical sciences. Indeed, it may become even more necessary to make this distinction in graduate curricula, for the two emphases have very different career goals.

Implications

Very briefly now I will emphasize two implications for university administrators of the trends discussed in the above paragraphs. The first of these is the obvious point that there will be need for great flexibility in curriculum planning and in program development, whether for research or teaching activity. Degree requirements may need to be altered drastically in response to the need for interpenetration of the disciplines with one another. It is possible, I think, that this degree of complexity may aid us in the achievement of greater individuality and training as we have long sought to effect.

A second implication also is loud and clear, namely, that social science research and training will become more expensive. No longer can the social sciences be viewed as essentially low-cost areas at the graduate level of advanced research and education. Higher generation computers, experimental facilities, data banks, national samples, and the like, all are tremendously expensive. There will be great need for planning in order to optimize the benefits of these developments. I am certain also that there will be great need for patience on the part of administrators whose perspectives on the social sciences may require alteration in the face of developments in the social sciences.

I am mindful that the social and behavioral sciences are greatly obligated to the universities within which they operate, and to the larger society which ultimately supports them, and to which ultimately they are responsible. In many respects these disciplines have not lived up to the promise of their forebears, but I believe there is greater promise and hope for achievement over the next few years. It will be--it is--an exciting time to be a social scientist. As a sociologist and as your colleague in the deanship, I appreciate this opportunity to address these important issues, and with you, I am sure, I hope for their successful resolution.

ADDRESS: THE PHYSICAL SCIENCES IN THE SEVENTIES

by: Marvin H. Wilkening
New Mexico Institute of Mining and Technology

One of the obvious areas of concern in the seventies is the graduate enrollment to be expected.

For the sake of orientation we will look at some of the information provided us in DOCTORATE RECIPIENTS FROM THE U. S. UNIVERSITIES 1958-1966 by the National Academy of Sciences. Figure 1 from that document shows a steady growth during the 1920's and 1930's, a sharp dip during World War II, and a steep increase averaging 9.3% per year in the period 1958 through 1966. If this trend continues, there would be more than 25,000 doctorate recipients in 1970. It is instructive to see how the composite 9.3% per year growth rate compares with that of the different fields.

Figure 2 shows the increase in numbers of doctorate recipients at 4-year intervals in seven fields. The physical sciences which include mathematics in this presentation will constitute the single largest category of earned doctorates. However, the growth rate is nothing as extraordinary as that of engineering, and it is only slightly more than that of the arts and humanities.

Factors Affecting Rate of Growth

There are numerous factors that temper the somewhat optimistic growth rates represented by the figures just shown. On a given campus the number of graduate students depend not only upon the number of students, but also upon the number of institutions offering graduate work. For example, in the 16-year period following World War II, the number of doctoral institutions almost doubled, increasing from 119 to 212. Figure 3 shows both the growth in number of institutions and the average number of doctorates per institution. There are indications that with the acceptance of "Master plan systems" for state-supported institutions, we can expect a leveling off in the numbers of institutions granting doctoral degrees and with it, an increase in the number of doctorates per institution. In 1966, 26% of the institutions were the sources of 75% of doctorate degrees. The fact that a few institutions produce large numbers of doctorates continues to hold. However, there has been little change in the proportions of high producers over the 16 year period 1950-1966.

There can be little question but that the western states have benefited from a consideration of geography in the distribution of Federal funds for fellowships and for the support of research. The principle of the establishment of new centers of excellence will continue to help the western states also.

Another important factor in the growth of graduate education in the West is concerned with the degree to which young people do their graduate work in the region in which they attended high school. In the 3-year period 1963-1966 only 27.5% of doctorate recipients in the mountain states attended high school in the same region. This is to be compared with 33.5% for the Pacific states, 50.7% for the Middle Atlantic states, and 52.95% for the west south central states. From the standpoint of the physical sciences, the development of basic research programs at Federally-owned installations in the West will play a big part in helping to keep talented young men and women in our western regions for their graduate study years. The program of the Associated Western Universities (AWU) is an important example especially in the physical sciences.

Following World War II many felt that with a rapid increase in population in the western states all that was necessary was to wait for the influx of new families to fill our graduate schools with competent students. This expectation has not come about because a large portion of the sons and daughters of these families return to the Midwest or to the East for graduate study. Another negative influence stems from the fact that many of the Western states are experiencing a marked decrease in the rate of population growth.

Another factor affecting the numbers of students present on campus at any one time is the average length of time spent in earning the doctoral degree. Figure 18 of the NRC report shows time-lapse distributions for 6 fields. Three separate curves represent three-year intervals for the period 1958-1966. Most fields show a decrease of about one-half year in total time to the doctorate. The physical sciences, however, show very little change, and education actually shows an increase in time lapse. Other data on actual Registered Time show practically no decrease. These facts are discouraging in view of the large sums of money poured into fellowships and traineeships which have as one of their goals the decrease in time required to earn the doctorate. One must conclude that at least as far as the physical sciences are concerned, other factors are more important than full financial support.

Finally, I should like to turn to the American Institute of Physics bulletin entitled "Physics Manpower 1966" for another sobering piece of information affecting graduate enrollments in the physical sciences. The first figure shows Bachelor's degrees granted to men in the period 1961 through 1965. Mathematics shows an average annual increase of 7.6%, chemistry 7.1% per year, engineering .7% per year, and physics has actually increased on the average only 1%. At the same time the total numbers of Bachelor's degrees granted in all fields has increased by 5.5% per year. It is clear from these data that the physical sciences and engineering, and especially physics, will be saturating within a few years unless the numbers of baccalaureate degrees in these fields increase. A leveling in both Master's and Doctoral degrees in physics is shown in the last figure. These data give striking evidence of the non-linear character of enrollment trends. The causes of the definite leveling off and even decrease in numbers of Bachelor's degrees in engineering and physics are a matter of considerable concern to the professional societies involved. Such things as the quantity and quality of secondary school instruction, the rapid growth of interdisciplinary programs in the sciences, and the complex interactions of science and society all have bearings on the problem.

Changes In The Disciplines

No review of graduate education in the physical sciences at this stage would be complete without some expression of a feeling for the future.

I agree wholeheartedly with Dean Bryce Crawford of the University of Minnesota while addressing himself to the subject of "New Trends in Graduate Study in the Physical Sciences" in GRADUATE EDUCATION TODAY, American Council on Education, 1965, as follows:

> I believe that, if we wish to understand recent trends in the physical sciences, mathematics, and engineering areas so that we may grasp the opportunities and avoid the dangers which these trends bring, we shall gain little from studying enrollment trends, or degrees achieved, or availability of Federal support funds. Instead, we must look into the nature of the disciplines themselves and into the changes which these fields have undergone with regard to their intrinsic character.

To many of our colleagues, the physical sciences are looked upon as the "fat cats" in the academic world. We have been favored by grants and contracts for research, for new buildings, for equipment, and for the improvement of education programs. Only in recent years, largely through the HEW and the National Humanities Foundation, have comparable boosts come to our colleagues in other fields. Just as these programs were gaining momentum, along came the Vietnam war with all its uncertainties and budget cuts. None of my colleagues in the physical sciences that I know of feel that the physical sciences should be supported at the expense of support for the biological and social sciences, and for the arts and humanities. However, I find myself in agreement with Dean Crawford "that in the period since World War I the physical sciences have been successful. The theories of the physical sciences have made contact with reality. They have progressed from the description of natural processes into the understanding of them and to the control of them".

Richard Feynman in the film "Strangeness Minus Three" makes the point that really great ideas come at relatively long intervals of time and are made by a relatively small number of people. He cites Newton's discovery of the laws of motion, Maxwell's discovery of the theory of electromagnetic waves, Einstein's theory of relativity, and the great discoveries in atomic and nuclear physics of only a few decades ago. Feynman, a recent Nobel prize winner, who has some insight into these matters, says that the time is ripe for another great physical discovery. No one can deny that these examples from the past and others almost certain to come will have a profound influence on our society just as the earlier discoveries have in the past. Perhaps it will be the privilege of our institutions in the Western Association of Graduate Schools to participate in such discoveries in the seventies.

FIGURES REFERRED TO IN THIS PAPER ARE ON THE FOLLOWING FOUR PAGES.

FIGURE 1
NUMBER OF DOCTORATE RECIPIENTS FROM U.S. UNIVERSITIES AND INFORMATION AVAILABLE ABOUT EACH RECIPIENT, 1920-1966.

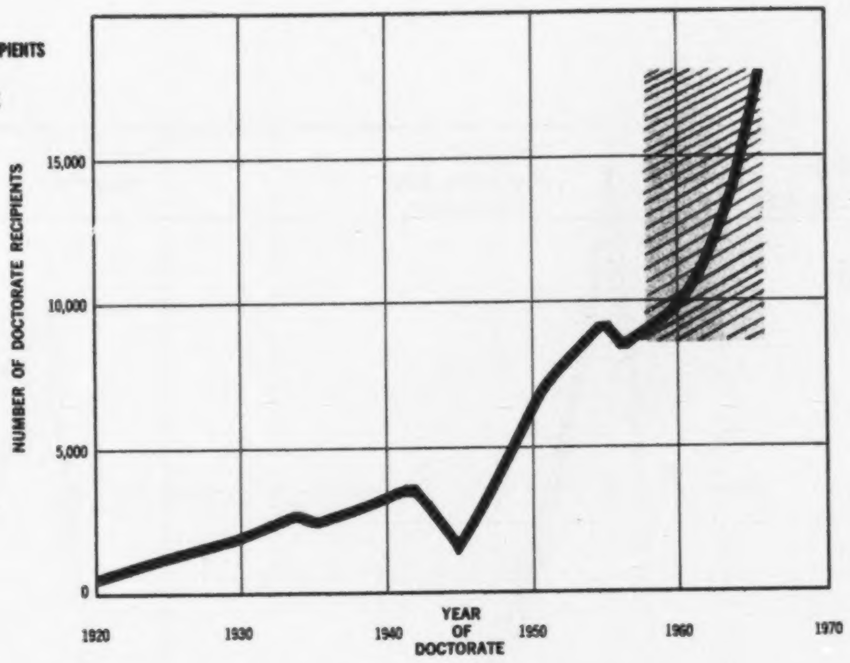
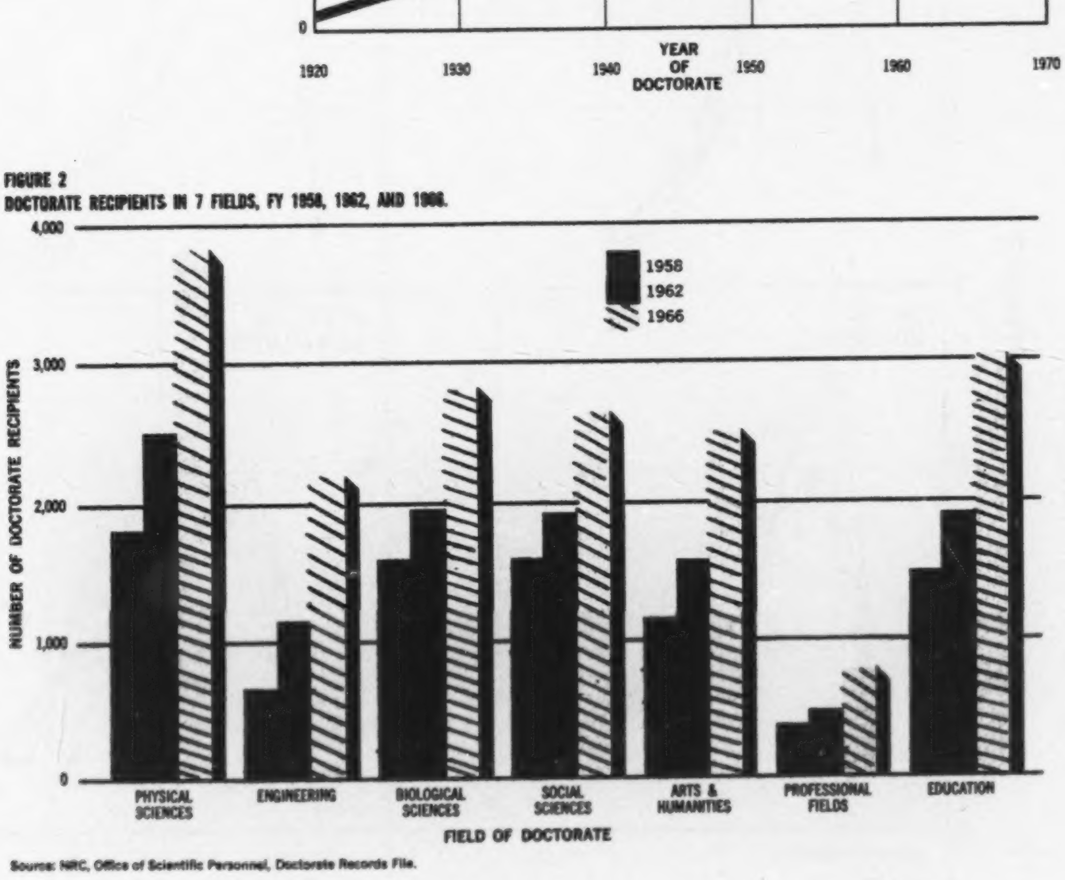
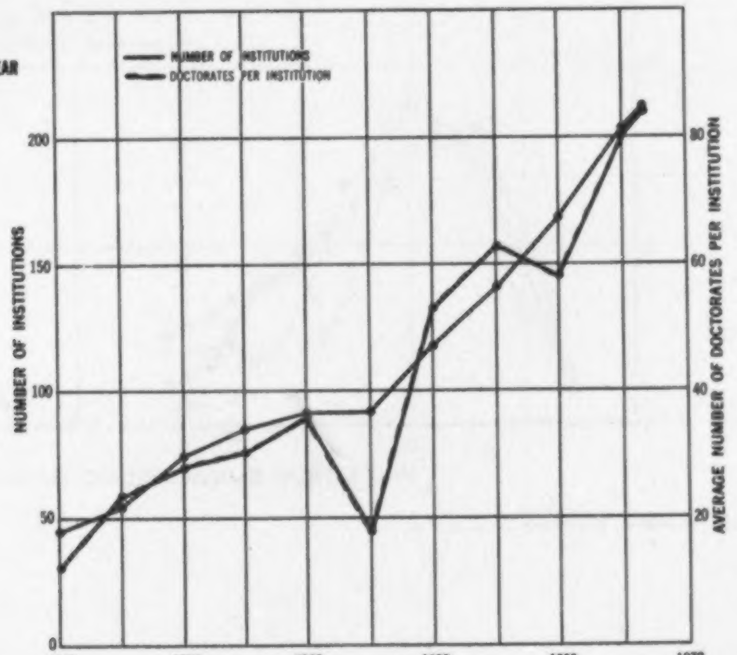


FIGURE 2
DOCTORATE RECIPIENTS IN 7 FIELDS, FY 1958, 1962, AND 1966.



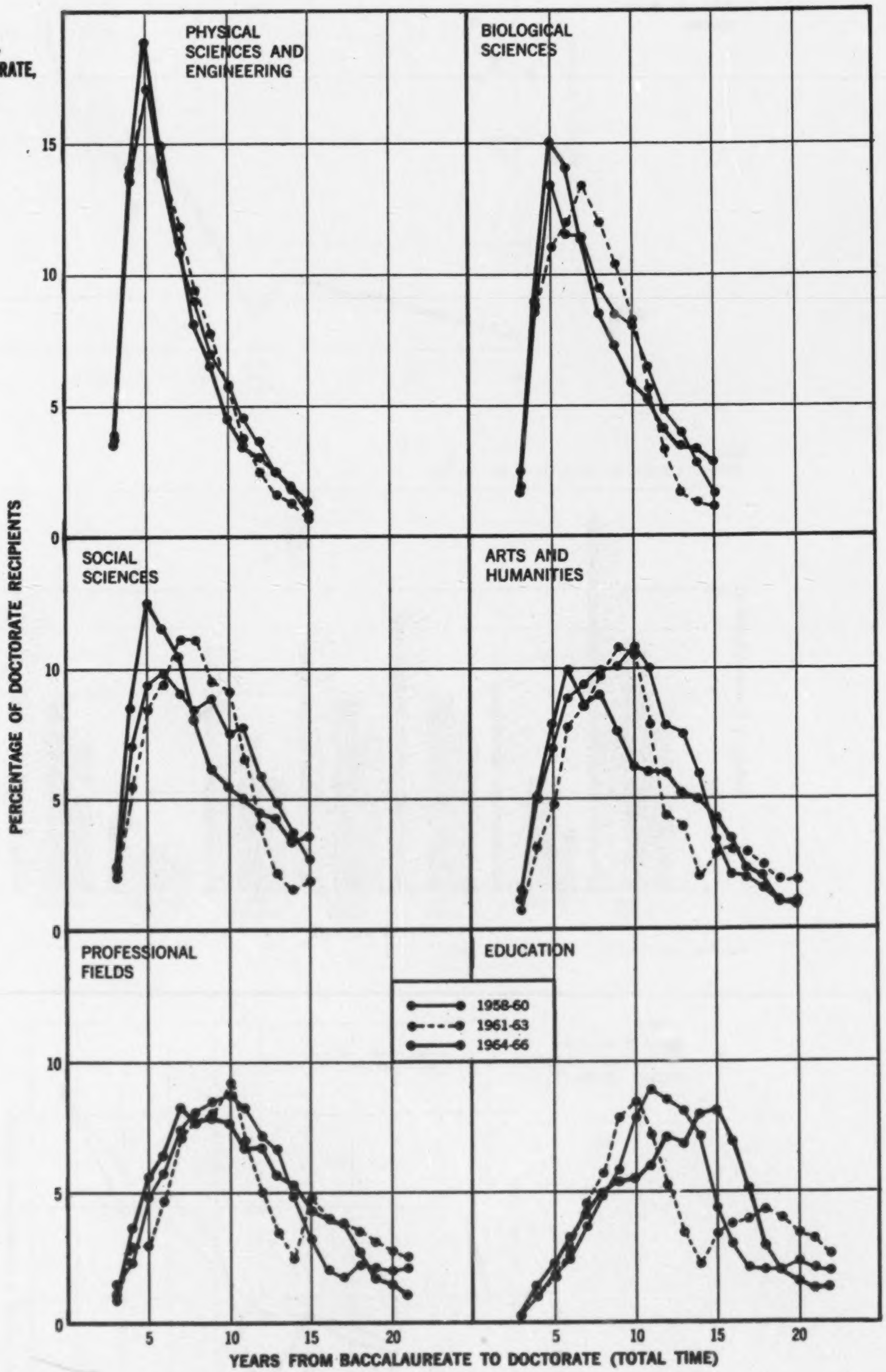
Source: NRC, Office of Scientific Personnel, Doctorate Records File.

FIGURE 3
NUMBER OF INSTITUTIONS GRANTING DOCTORATES, FIVE-YEAR INTERVALS, 1920-1966.



Source: NRC, Office of Scientific Personnel, Doctorate Records File.

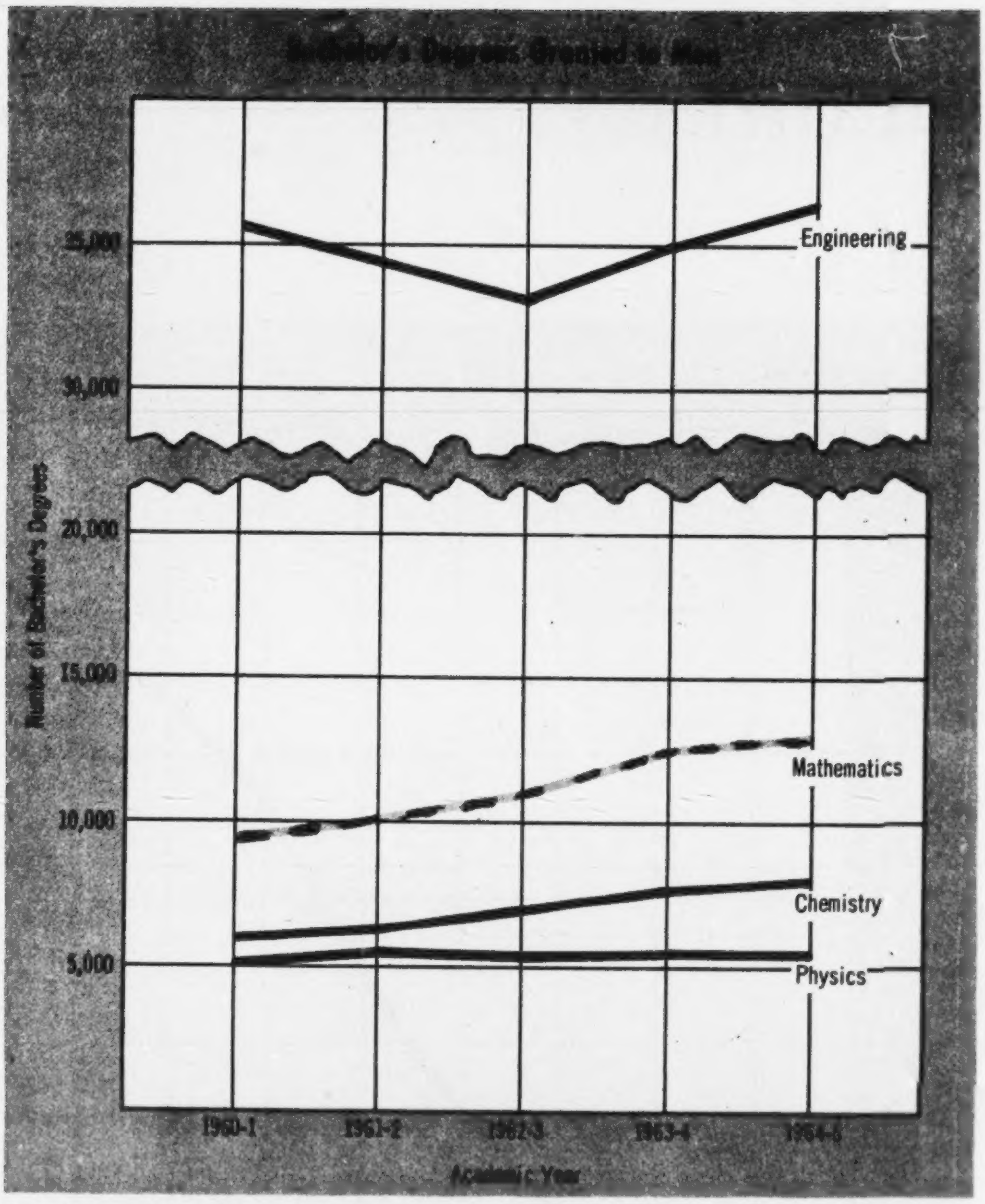
FIGURE 18
TIME-LAPSE DISTRIBUTIONS,
BACCALAUREATE TO DOCTORATE,
BY FIELD,
FY 1958-1960, 1961-1963,
1964-1966.



Source: NRC, Office of Scientific Personnel, Doctorate Records File.

DEGREES

Fig. 8



Source: AIP, Annual Survey of Enrollments and Degrees. "Eained Degrees Conferred, Bachelor's and Higher Degrees," U.S. Office of Education (OE-54013) published annually.

Table 11. Trend in bachelor's degrees granted to men.

Academic Year	Total in U.S. (Male)	Physics	Chemistry	Math. & Stat.	Engineering	PERCENTAGES Physics / Total U.S.	Chemistry / Total U.S.	Math. / Total U.S.	Engineering / Total U.S.
1960-1	254 215	5 293	6 096	9 694	35 732	2.08	2.40	3.81	14.1
1961-2	260 531	5 622	6 371	10 355	34 610	2.16	2.45	3.97	13.3
1962-3	273 169	5 452	7 054	11 163	33 328	2.00	2.58	4.09	12.2
1963-4	298 046	5 611	7 805	12 682	35 067	1.88	2.62	4.26	11.8
1964-5	314 000	5 517	8 111	13 132	36 658	1.76	2.58	4.18	11.7

NOTE: Bachelor's degrees granted to women in chemistry, mathematics, and engineering are approximately 20%, 32%, and 0.5% respectively of the total number of bachelor's degrees granted in those fields.

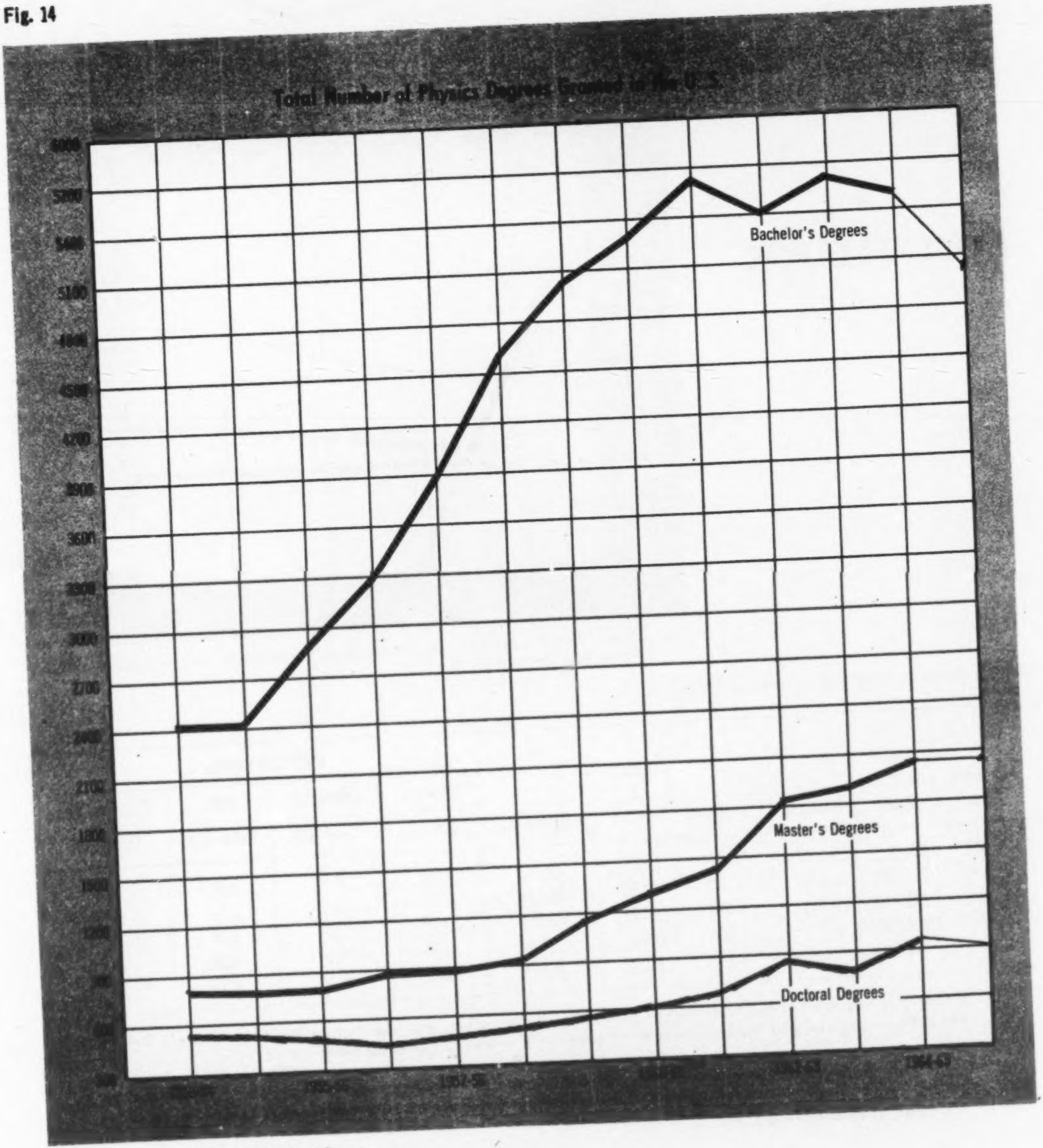
Source: AIP annual "Survey of Enrollments and Degrees."

"Bachelors' and Higher Degrees Conferred," U.S. Office of Education published annually, OE-54010

Pre-publication data from USOE.

DEGREES

Fig. 14



Source: AIP, Annual Survey of Physics Enrollments and Degrees.

ADDRESS: HUMANITIES AT THE CROSSROADS

by: Virgil K. Whitaker
Stanford University

My theme this morning might be summarized as the Humanities at the Crossroads. But since I am supposed to be speaking as an English professor as well as a Dean, I should know better than to use my metaphors loosely. Actually, I am thinking not of four possible directions in which the Humanities are being pulled but of three. Latin had a perfect word for what I want, namely trivium, which meant the meeting of three roads, but unfortunately it survives in English only in our word "trivial" describing what was likely to be discussed there. And certainly I do not see the issues that I am talking about today as trivial. So let's forget the search for metaphors and get on with the problem.

Quite simply, any professor of the Humanities today who is alert to what his colleagues and students are thinking about is being pulled in three directions. First of all, there is the intellectual tradition which derives from the very foundation of the modern American University in the German University of a century ago, namely the assumption that the prime duty of every scholar is to discover and to publish the truth. Too often in practice this high ideal has degenerated into "publish or perish." Nevertheless, the high ideal of increasing the store of knowledge which contributes to the happiness and the betterment of mankind still exercises a powerful appeal for professors. They still love their books even more than the resulting promotions and salary raises.

The second source of tension is the steadily mounting demand that teachers of the Humanities become critics of contemporary literature or art or music or drama. Criticism has always been, of course, an important part of their job, because what a work of art or literature means and why it endures are far more important parts of the truth that scholars seek than the facts concerning its production. There is nothing inherently wrong in a preoccupation with criticism as such. The trouble is that excessive preoccupation with contemporary art or literature inevitably means excessive preoccupation with changing fashions and too often with the trivial, since no age has managed to produce a very high quota of masterpieces except for a very few like the great age of Athens or Elizabethan England. I doubt seriously that preoccupation with the essentially trivial contributes to the best education of anyone, student or professor, and we cannot affort in talking about university studies to forget that the whole university program is intended to be a continuing education for the faculty as well as for the student and must remain so if the system is to function properly.

The third and probably the strongest pull today results from the preoccupation of the younger generation with contemporary social issues--with the mood of discontent and frustration and rejection that is so characteristic not only of our students but of the younger members of our faculties who have been students in the past decade. Their own preoccupations, as well as the very human wish to appeal to their students, impell them to turn every course into something approximating a discussion either of the quest for identity so fashionable among today's students or of what is wrong with the world. I am, incidentally, so old-fashioned as to think that they are looking for an identity in the one place where they cannot possible find it--namely within themselves. I therefore welcome a preoccupation with the world about them. Let us never forget that remaking the world is the greatest of the traditions about which humanists rally. It is, in fact, the achievement that led to their being called humanists in the first place, as the civilization of Greece and Rome was brought to bear upon that of Europe in the fourteenth, fifteenth, and even sixteenth centuries to mould the humanity-centered world we know today. So today's youngsters who believe that the study of the Humanities should be brought to bear upon the troubles of an agonized world are in the great tradition from which they spring, even though all too few of them know anything about that tradition and most of them probably think that the word Humanities denotes a concern with the welfare of human beings rather than a preoccupation with the study of the Classics, which is historically what it meant. The problem, to which I shall return, is how one goes about affecting the woes of the present.

These are the tensions that I see, but underlying and in fact largely producing them is a still more fundamental issue which strikes at the very heart of the Humanities, as it does of all university disciplines. This is the question of the basic obligation to truth. On this issue there can be no doubt that when universities either in Europe or in this country were developing, all those involved would have been in agreement for practical purposes, whatever their philosophical position, that truth is essentially an absolute and that an obligation to find the truth or to be loyal to the truth as one sees it transcends all other obligations. But for an increasing proportion of our colleagues and a still larger proportion of our students today truth is either strictly relative to their objectives or has very little meaning at all as an ideal. Once again, I am not talking about philosophic questions, I am talking about the realities of daily life in a university. This situation was brought home to me several years ago when tensions between students and faculty and administration first became really acute at Stanford. A meeting of students and faculty was engaged in a heated argument. Suddenly the question of what had happened in a given episode became crucial, and without a moment's hesitation the students present appealed to the then Dean of Students for an account of the matter. They did so knowing full well that they would get the truth whether it hurt his position in the argument or not. The thing that impressed me then was that not one of us on the other side of the argument would have dared make the same appeal to the students, because we had already caught them continually shifting and evading or in some cases quite deliberately misrepresenting the facts as it suited their advantage to do so. It will not do to say that the students lied, because that would evade the problem. They simply did not recognize any such overriding obligation to get at the facts and to report the facts accurately as the older members of the faculty there present took for granted. This schism is increasingly appearing between older faculty members and their younger colleagues.

A related phenomenon is increasingly apparent at least on the Stanford campus and, from what I can find out, elsewhere as well. That is a kind of new morality. For many students and faculty what really determines the right or wrong of what a person does in all kinds of situations is not basic principles but where he stands on certain overriding contemporary issues like the war in Vietnam. It may seem that I am exaggerating, but I assure you that I can document this view point with many examples of faculty members who have seemed to feel that the right attitude on Vietnam or similar social problems of today was adequate justification for the most flagrant breach of various kinds of scholarly obligations. Remember that I am not talking about questions of discipline; I am talking about questions of scholarly performance especially by graduate students but also by undergraduates.

In short, if I expressed discontent with my first metaphor in saying that the Humanities are at the crossroads, I am tempted to say that the problem facing the Humanities is to find their own soul. But this metaphor too is obviously unsatisfactory in that it is loaded and indicates all too clearly the bias with which I approach this problem.

If there is any merit in the preceding analysis, certain consequences follow.

First of all, key decisions are going to have to be made in the next decade about the nature of the curriculum in the Humanities. Shall it be concerned with the meticulous scholarly approach necessary to develop a thorough understanding of the past on the assumption that the past is the best key to the present, or shall it throw itself headlong into a discussion of contemporary literature, and through that literature, of contemporary "isms"? Notice that the issue is not whether or not the Humanities shall attempt to affect contemporary life. To repeat, that is and always has been their main mission. The issue is simply whether they may do so most effectively by bringing to bear upon the contemporary scene an understanding of the achievements and failures of the past or whether they should forget about the past and simply address themselves to the present. I am, of course, over-simplifying drastically and omitting a variety of compromise positions, despite the fact that these compromise positions are in fact what are emerging in most curricula in the Humanities today. I want to focus the issue clearly with relation to polarities. I think myself that, even to the extent already characteristic of many universities, preoccupation with a study of the present is depriving the humanistic disciplines of their great value in enabling the student and scholar to see his own culture from an appropriate distance and with appropriate tools of criticism derived from the experience of the past. But perhaps I am an old fogey.

The issue that I have just suggested will naturally affect the practice of the universities in the recruitment and promotion of their faculty, especially if the main object of courses in the Humanities is to get the youngsters all riled up, and although my language seems flippant, this is in fact the main objectives of many of our younger faculty members and a few of the older ones. I have been increasingly worried of late that the strident clamor from the undergraduates for better teaching, by which in general they mean teaching that concentrates upon the contemporary scene and sometimes, I am afraid, teaching that is in line with their own popular assumptions or prejudices, may lead to an emphasis in recruiting and promotion upon charismatic qualities in a teacher as opposed to sound scholarship. I am certainly unwilling to accept the assumption that a sound scholar is necessarily dull, but I am prepared to argue that he cannot spend his time on keeping up with the latest fads among his students.

The repeated assaults of students and the younger faculty upon "publish or perish" should be examined in this light. The attack in part is absolutely sound. Too much is being published, and a great deal of it is of very minor value indeed. I speak with feeling because this is nowhere so true as in my own specialty, the study of Shakespeare. Let me state my own conviction that during the next decade nothing will contribute so much to the quality of scholarship as cutting scholarly publishing in half, although I fear that, instead, the microfilm will start distributing typewritten material to add to the load. A quite valid dissatisfaction with procedures in which promotion and tenure committees sometimes merely weigh publications should never be brushed aside. On the other hand, much of the dissatisfaction with an emphasis upon scholarship today emanates from the conviction that meticulously finding the truth really does not matter, that the important thing is to go out and man the barricades or at least to stimulate one's students to do so. This point of view I believe the University must resist at all costs. An issue is developing as to the very nature of what is expected of the University professor, and it will have to be settled in the next decade.

We must not forget for a moment that the question of the fundamental nature of the professor's obligation to truth is vital to the whole doctrine of tenure as we understand it in the modern university. As I see it there are two fundamental bases for the proposition that the professor, once he has served his apprenticeship, must be protected in his right to pursue scholarly research to valid conclusions. The first of these is simply a concern that society shall have access to an informed and thoughtful body of criticism, even though some of that criticism will enevitably be infuriating and more of it will be cantankerous. Any healthy society must have this kind of corrective at work upon it, especially that which comes from the conclusions of reasonably meticulous scholarship. This is an important argument for tenure which should never be overlooked, particularly in some of the battles that I foresee.

But the more basic argument for tenure is quite simply the conviction that truth has a claim transcending all others and that a man who proclaims the truth fortified with credentials as a scholar competent to seek truth, must be protected at all costs. Corollary to this doctrine is the moral principle that I believe was first formulated in the Middle Ages--namely that an erring conscience binds. This simply means that, however wrong we may believe a conscientious scholar to be, we must respect him when he is proclaiming what he sincerely and conscientiously believes to be the truth. Any claims based upon the needs of society for therapy are likely to be brushed aside in times of tension. The only genuine protection for the academic profession is the principle that truth is sacred, and once this principle is abandoned, as it is in fact being abandoned today, the whole structure of tenure in American universities is in very serious jeopardy and will not stand up very long if we have another wave of McCarthyism or, what is more likely, an increasing period of tension resulting from the attacks of the new left. Let us not forget that even during the darkest days of McCarthy we would never have tolerated or even dreamed of the inroads upon the right of free speech on a university campus that have occurred within the last two or three years. The darkest day in the history of Stanford was surely that in which Dean Rusk decided that he could not safely speak at Stanford. The right to proclaim the truth as one sees it is not doing very well on the American campus today. If faculties tolerate suppression of free discussion by the new left, they will inevitably have to face attacks upon tenure by the old right, and they will deserve them.

Finally, and I hope that it is clear that I am moving from the theoretical to the practical, as well as into problems facing the whole university and not just the humanities, we need badly to develop a new morality in graduate study in the presence of massive aid to graduate students, whether in the form of federal grants and fellowships or by way of the more traditional fellowships and scholarships provided by the University itself. A generation or two ago universities produced relatively few Ph.D.'s, and these doctoral candidates could be allowed to proceed at their own pace because they proceeded at their own expense. Today it is axiomatic in a major university that only applicants for graduate admission who come are those who receive support of one kind or another. Yet we really have no ethic either among the faculty or among the graduate students as to the kind of obligations that a graduate student assumes when he accepts aid to pursue his studies. I believe, quite simply, that a student who accepts financial aid and then does not devote his full time, or at least that reasonable proportion of his time which we expect any person holding a full-time job to devote to his work, is quite simply dishonest. He is obtaining money under false pretenses. Yet it is quite apparent that this view is not uniformly accepted upon university campuses.

As I have encountered the problem, the dissent to the proposition I have just made has two sources. First, there are those addicted to the old ways of doing things who believe that a Ph.D. candidate must still be allowed to proceed at his own pace, even though he is no longer proceeding at his own expense. I can understand their feelings, although I cannot understand their logic. More serious, in my view, are those who are affected by what I called earlier a kind of new morality. If a student spends his time in political agitation or even agitation with respect to local university problems, this is quite all right, because presumably this kind of concern with contemporary issues is its own justification and transcends any obligation to earn the assistance that one is given. It must be clear that I do not accept this view myself, although I certainly do accept the proposition that a graduate student is a citizen like everyone else and has not merely a right but an obligation to devote a reasonable proportion of his time to what he considers to be his duty as a citizen whether of the nation or of the University. But a reasonable proportion of his time is not, in my view, something approximating full time or even half time. In the next ten years we may have to be reminded that an obligation to truth applies even to applications and reports concerned with aid to graduate students.

I am aware, in closing, that I have inflicted a somewhat theoretical talk upon Deans, who fortunately for the smooth running of universities are essentially practical people. But where there is no soul, the people perish. This is uniquely true, in my judgment, of the Humanities, and I would be false to my charge this morning if I concealed for a moment my belief that the Humanities are in considerable peril today not because of the budgets manipulated by Deans but because of their own need for some soul searching.

THIRD GENERAL SESSION

THEME: "Planning for the Admission and Care of Graduate Students"

PRESIDING: M. L. Jackson, University of Idaho

ADDRESS: GRADUATE STUDENT ENVIRONMENT IN THE SEVENTIES

by: Charles G. Mayo
University of Southern California

The graduate student environment in the seventies will, as is the case now, be shaped by students, faculty, administrators, and elements outside the university. Among the factors outside the university which are of significance are the attitudes of alumni, legislators, trustees or regents, and the general public. The environment is, of course, constantly changing and evolving, but I believe that its major dimensions in the seventies can be identified.

Let me start with a very pessimistic assumption: that the Vietnam war will continue into the seventies and that the graduate student environment will be profoundly influenced by it. The most obvious manifestations of that influence will be found in:

1. Reduced federal government support in the form of fellowships and traineeships; research support, etc.
2. Reduced enrollments as a consequence of the draft, if present regulations are not modified.
3. Changes in the composition of the graduate student population.
    - a. There will be more veterans, although the public institutions will probably receive the vast majority of them because the Cold War G.I. Bill does not pay for tuition.
    - b. The student population will be older and composed of more part-time students.
    - c. There probably will be more female graduate students, if special efforts are made to recruit them.
    - d. There is danger that quality may drop because of concern with maintaining quantity. This will be a particularly serious problem for private institutions which are dependent on tuition income.

4. A distinct state of tension will exist between the university and the larger community because of disapproval of the war on the part of faculty and students. I am assuming, of course, that the non-academic community will continue, as at present, to give at least tacit support to the war.

If the war ends, and if massive federal assistance is accorded the social sciences and humanities at a magnitude approaching that which has been in recent years given to the natural sciences and engineering, then we may expect to see in the seventies a change in the composition of the graduate student population in the direction of a higher proportion of students in non-science areas.

Another assumption on which my analysis is based is that student activism on both the undergraduate and graduate levels will remain at least at the level that it is found today. Students will insist that the narrow professionalism of their training and education not divorce them from the realities of the problems confronting society. Students will want to involve themselves and their university in the attempt to achieve desired social change. This may even take the form of demanding that the university abandon its traditional stance of neutrality in value-laden, controversial matters.

At the very least students are probably going to insist on playing a larger role in decision-making with respect to their academic training at the graduate level. All of us are presently experiencing pressure from graduate students for changes in regulations, especially with respect to the language requirements for the Ph.D. degree. I believe that this pressure will intensify, and I do not feel that it can be summarily discounted as being deleterious to the educational process. I do deplore, however, the willingness of the courts to take jurisdiction in suits where students allege that they have been denied due process in their dealings with the university. There is no question but that graduate deans are going to have to be more careful in documentation of actions in the future.

I speak from personal experience because I have recently been named in a suit against my university brought by a student who is protesting his dismissal after failing the qualifying exams for a second time.

One of the real challenges to graduate deans in the seventies will be to utilize the desire of students to play a larger role in determining the content of their graduate education in constructive ways. An important aspect of this will be the problem of maintaining effective channels of communication among students, faculty, and administrators. A way of accomplishing this may be to provide for student representation on bodies like Graduate School Faculty Councils. Certainly more effective information gathering and dispensing mechanisms are going to have to be developed than exist on most campuses today. Computers will have to be used to compile and analyze the data needed to understand the graduate student environment of the seventies. In addition, graduate deans will have to be concerned with finding means of counteracting the dehumanization which inevitably seems to be an environmental characteristic of the megaversity. Dehumanization, in my view, tends to lead to student action which is fundamentally destructive of the order which is essential for effective teaching and research.

In closing let me say a few words about a fear that troubles me both as a graduate dean and as a political scientist. I have come to the intuitive judgment--perhaps based too much on my California experience--that the attitude of the larger community is not one which is hospitable to higher education. The public, which has never been tolerant of deviation in thinking and which, indeed, has been said to be anti-intellectual, has become frightened by what it has read in the newspapers about what occurred at the University of California and other distinguished institutions.

Let me say that I think that it is inevitable that there will be a certain amount of tension between the university and its supportive community--perhaps there must be if the university is effectively pursuing its job of being a social critic--but I am afraid that this may intensify to the point that McCarthyism--the ultimate in anti-intellectualism--will again appear in our midst. All members of the academic community--faculty, students, and administrators--will be obliged in the seventies to speak out in favor of responsible criticism, to assert the indispensability of academic freedom coupled with responsibility to the educational process at all levels . . .

ADDRESS: THE NEXT FIVE YEARS: STANDARDS OF ADMISSION AND THE FORECASTING OF ACADEMIC SUCCESS

by: Robert S. Kinsman
University of California, Los Angeles

I often resort to Boswell's Life of Samuel Johnson D.D. as a sortes Vergilianae on melancholy occasions. Charged with making fresh remarks on old topics and with forecasting what we should do to make graduate admissions a reliable academic weather bureau--surely the shortest way to the 'spital house--I opened to Johnson's remarks on the Reverend Dr. William Dodd, celegrated as a very popular preacher, one who had overly encouraged charitable donations to persons and institutions, not excluding himself or his own. Appropriately for this occasion, I found reference to a sermon he had preached entitled "The Convict's Address to his Unhappy Brethren," delivered in Newgate and commencing "You see with what confusion and dishonour I now stand before you;--no more in the pulpit of instruction, but on the humble seat with yourselves." Like Dodd I am constrained to turn to learned men to rescue me, for having investigated my topic, I am convinced that my life as an associate dean for some "few unhappy years past" has been "dreadfully erroneous."

Let me suggest how difficult it is to mend my ways by asking you, unfairly, I am sure, for the question is devious, what you would have predicted for the following young man, a boy in his senior year in secondary school. He had obtained a certificate from a doctor stating that it was necessary for him to leave school for a six months' rest to recover from a nervous breakdown. The young man had no friends; his teachers found him a problem; he was not well rounded and had adjusted poorly to school. He had odd mannerisms, made up his own religion and chanted hymns to himself; his parents regarded him as "different." So far I might have been describing a not so atypical student on, or just off, any one of a number of California campuses, privately endowed or publicly supported. Some of you might well have rejected this young man who was to distinguish himself as a writer, scholar, musician and humanitarian--Albert Schweitzer.[1]

I have deliberately distorted the problem for, thank God, we are not charged with identifying genius, we have enough to do simply to forecast academic success, by which I modestly understand the following: the attainment of one's post-baccalaureate objectives, be they the Master's degree or the Ph.D., within a reasonable lapse of time.

I shall further delimit the question by reminding you that my observations are based on the activities of a large graduate school, force-fed to a certain lesser eminence while in academic adolescence and yet about to be confronted by middle-aged scholastic midriff (in terms of a relative stability of graduate enrollment bulge). What we did five years ago we do not do now. What we shall do five years hence, however, may well depend on the new necessity of developing redundancy of information for the purposes of "competitive" selection and of developing or encouraging the new measurements of promise.

Five years ago--for I must look that far back in order to look five years forward--UCLA's rejection letter bore the statement that an applicant's undergraduate grade point average was the index of his predictable success (or lack of it) as a graduate student. We have since modified that statement if only by substituting an indefinite article for the definite. The facts of the matter, such as they are, seem to suggest that the relationship between college grades and adult achievement is tenuous. As the editors of the Educational Record remark of Donald P. Hoyt's review of 46 studies on the matter, "Dr. Hoyt's conclusions--(Research Report #7, Sept. 1965, American College Testing Program) are surprising, if not shocking, to many of us who have been giving grades to hundreds of students year after year. However, a careful reading of his Research Report supports Dr. Hoyt's restrained and cautious interpretation. He points out that vocational success has been the dominant criterion but salary, for example, does not reflect important qualitative differences between occupations or other aspects of a person's career such as his esthetic appreciation, community leadership, etc. The methodological complexities are indeed serious--nongraduates are not included, and this restricts the samples; there are variations in the time lapse between graduation and the date when the evaluations were made, etc. The author's review of the literature is, nevertheless, a valuable contribution if only to remind us of the oversimplified interpretation that is frequently given to "grade-point averages" as: (1) a measure of achievement or (2) a predictor of future performance.

For purposes of "academic" forecasting in the terms of my own modest proposal, however, (not in terms of "adult" or professional distinction), I by no means argue that grades are useless or meaningless but that they are not reliably to be resorted to as the sole basis for prediction. To go back five years for review of our powers of forecasting, I turned to the department of chemistry, knowing there at least I could find facts. I realize, to be sure, that statisticians present can easily assail me on my limited sample.

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[1] See the Foreword to Victor and Mildred G. Goerbzel's Cradles of Eminence (Boston: Little, Brown and Co., 1962), p. xiii.

In its entering class of 1962 (see Appendix I), I found a noticeable correlation between the junior and senior grades in the major, the marks earned in graduate study and the completion of degree objectives. Thus an Occidental College graduate with a 3.14 upper division general average but with a 4.0 in Chemistry earned a 3.58 g.p.a. at UCLA and completed his Ph.D. in 5.9 years; an Illinois graduate with a 3.91 in Chemistry made a 4.0 in graduate work at UCLA and completed his Ph.D. in 3.5 years.

But what of the UCLA graduate with a 3.44 in upper division Chemistry who was awarded an M.S. in 4 years and dropped from the Ph.D. program? To answer this I bring in a second factor, used, I regret to say, by only a few of our departments--letters of recommendation. Had these been more seriously weighted, their lukewarmness and their encouragement of the student to try a smaller graduate school should have raised some doubt about the relevance of his academic marks to his potential achievement.

In reviewing the records of the Chemistry students who, for whatever the reason, didn't go beyond the M.S., I noticed a third possible factor for prediction. Four of the 5 Master's had failed a foreign language exam the first time they sat for it. I then remembered the statement of Dean Miller of Yale that in an informal survey of successful Yale Ph.D. candidates the one common factor he could discover was their early, successful completion of language tests in the fall of their entering year. I don't mean to open Pandora's box and release vexatious and envenomed dispute here but I do believe that the failure to satisfy the language requirement at first crack may be a significant negative clue in a graduate student's profile of ready graduate success.

Thus the failure of a chemist with a 3.75 upper division overall and a 3.68 in the major, a graduate of a good but not topnotch school and department, might have been rendered less surprising if the "few and slight reservations" in otherwise outstanding letters of recommendation had been held up to the light and if the department could have known in advance that the student would flunk his German exam.

One wonders whether or not the department might have set up an even finer screen if it had made use of the GRE Aptitude and Advanced Tests. Five years ago at UCLA, two or three departments at the very most required them; today, in some form--Aptitude alone, Advanced alone, or across the board--about 25% of our departments use them along with g.p.a. or combined with g.p.a. and letters. Enough investigation has been done, although with highly selected constituencies, by the Office of Scientific Personnel of the National Academy of Sciences and National Research Council to suggest that the GRE is a useful adjunct in prediction of academic success, an area where redundancy of information seems absolutely necessary. John Creager in his Technical Report #25 (16 November 1965) indicates that among NSF fellows in Biology, Chemistry, Engineering, Geology, Mathematics, Physics and Psychology the results on the GRE Advanced test had highest validity, followed by those for the Quantitative test; then came validities for g.p.a. and reference report variables, followed finally and most lurkingly by the Verbal test. These results are admittedly skewed by selectivity; what applies to the NSF fellows in their particular fields would not be expected to apply to graduate students in the Humanities where the verbal factor might well be the most reliable of a set of not-too-reliable returns. My point, nonetheless, is that "Fourteen Years of Research on Fellowship Selection," the title of a summary pamphlet by Lindsey R. Harmon for NAS and NRC (1966) would seem clearly to indicate that GREs are of use in helping to work out prediction of "doctorate attainment" (to quote a clumsy phrase) "whether the criterion be percentage of people attaining degrees or time required for their completion" (p. 18).

By now I have *talked* most of my time away in a manner that would have infuriated old Dr. Johnson, who once complained that, at table, "we had *talk* enough, but no *conversation*; there was nothing *discussed*." To provide a basis for discussion, let me predict what we shall try to do at UCLA the next five years to increase the predictability, in turn, of Academic Success. First there will be a campus wide consolidation of "admission-by-combination" (by g.p.a.--letters of recommendation--GRE and other evidence of distinction).

Item-by-item such a consolidation will mean a raising of the grade point minima well above the "University Minimum" by all departments (a process we are now experiencing). Paradoxically this will be done in order to be ready for boldness or even extravagance in considering other factors, for we shall have in force a far wider range of gauges. We shall, for instance, have a second and supplementary, uniform device--letters of recommendation with some suggested gauges of physical and psychological endurance and motivation. We shall, in the third place have encouraged ETS to review and revamp their basic tests and to improve the Advanced tests and increase their range and availability.

We shall have made it mandatory that entering graduate students submit an ETS language examination score, *not as a means of disqualifying an otherwise acceptable student*, but a) as a propadeutic to him, and b) one more source to us of potentially useful predictive information.

As my penultimate suggestion, we hope that by 1973 tests will have been developed that will give us some predictors of "creativity" as well for the arts and humanities as for the sciences. Ever since June 1954 the NSF has been interested in developing some such instrument for scientists. In 1962 at the Utah Creativity Conference a Remote Association Test was announced but proved to have little validity, although indicating that psychologists are still concerned and are still grappling with the problem. To provide the biographical material necessary for analysis seems to demanding and personal, for how can we obtain insight into such qualities as Donald W. MacKinnon says, are characteristic of successful architects: "an openness to experience, a wide perceptiveness of what exists within as what goes on outside. They had the capacity to admit complexity and disorder into their perceptions without being made anxious by the chaos, and the ability to form a new order out of the richness thus permitted."?

Finally, we look forward to the research of departmental teams of interviewers who will maintain a systematic schedule of interviews within the state and who will resort to the use of departmental friends and graduates out-of-state. By that time I.I.E. may have worked out the quirks in its Overseas interview program, have extended its availability and have engaged genuinely qualified interviewers. But that will have to be at a different time--as well as in a different country.

Quite recently we interviewed a young archaeologist for a post on our campus. Among other things he was seriously concerned with the surviving cultural evidence provided by latrines and night soil. One of the committee rather wittily remarked that such a candidate surely didn't deserve a chair but might certainly need a seat. And it is to my seat that I should now return, my diggings done.

APPENDIX I

STUDENTS ENTERING GRADUATE PROGRAM IN DEPARTMENT OF CHEMISTRY (1961)

		U.D.						
Student	**U.G. School**	**O.A.**	**Chem.**	**Letters**	**Deg. Obj.**	**D. Earned**	**GPA**	**Total Time to Degree**
1	Col. of St. Scholastica	3.18	3.58	V. Strong	M.S.	M.S.	3.09	3.5 yr.
		(Very poor performance. Should not have been admitted as a graduate student. Currently a technician at Livermore Radiation)						
2	Fresno St.	3.51	3.56	Strong	Ph.D.	Ph.D.		5.0 yr.
		(After a slow start he proved to be a very good student. In general his performance reflected the predictions from grades and letters. Currently in industrial research)						
3	Harvard	2.81	3.22	Favorable but not overly strong	Ph.D.	Ph.D.	3.79	4.5 yr.
		(Excellent graduate student. Rapid completion of formal requirements. Currently Post-doc.)						
4	UCLA	2.77	3.44	Lukewarm but encouraged him to go elsewhere	Ph.D.	M.S.	2.85	4.0 yr.
		(Math. major with Chemistry minor. Was terminated at M.S. at Dept. request. Not a strong graduate student. Record predicted this better than letters. Now teaching in high school)						
5	Occidental	3.14	4.0	Strongly rec.	Ph.D.	Ph.D.	3.58	5.9 yr.
		(Good graduate student. Excellent TA)						

APPENDIX I (Cont.)

		U.D.						
Student	U.G. School	O.A.	Chem.	Letters	Deg. Obj.	D. Earned	GPA	Total Time to Degree
6	UCLA	3.02		Not available	Spec. Student	None	2.84	
		(Apparently not a strong chem.student, but little information now available. Did not take language exam.)						
7	Illinois	3.82	3.91	Exc. rec.	Ph.D.	Ph.D.	4.0	3.5 yr.
		(Lived up to high expectations. Excellent graduate student. Currently research chemist at Monsanto)						
8	U. of Alberta	3.63	3.80	Strong	Ph.D.	Ph.D.	3.74	4.0 yr.
		(Very good graduate student. Perhaps not as outstanding as record would suggest, but solid. Now Post-doc. at Caltech)						
9	U. Wash.	3.15	3.31	Good to V. Good	Ph.D.	Ph.D.	3.50	4.5 yr.
		(Academic record and performance somewhat spotty at first, but eventually quite satisfactory. Research performance good. Excellent TA)						
10	Albion Col.	3.50	3.83	Strong	Ph.D.	Ph.D.	3.59	4.5 yr.
		(Average graduate student at Ph.D. level, but satisfactory. Started a bit slow then finished strong. Asst. Prof. Calif. Lutheran College)						
11	Idaho St.	3.73	4.00	Not available	Ph.D.	Ph.D.	3.72	3.5 yr.
		(Very good graduate student who made rapid progress through his degree requirements. Asst. Prof. UC Davis)						

APPENDIX I (Con't.)

Student	U.G. School	U.D.		Letters	Deg. Obj.	D. Earned	GPA	Total Time to Degree
		O.A.	Chem.					
12	S.D. State	2.49	2.91	Good offset grades	Ph.D.	M.S.	3.31	6.0 yr.
		(Flunked French language exam. 1st time. Dropped out once, returned, and finally decided to terminate with an M.S. Good experimentalist. Employed in industry)						
13	U. of Natal So. Africa	B.Sc. Honours 1st Class		Not available	Ph.D.	Ph.D.	3.81	3.0 yr.
		(Excellent student. Very bright and very independent. Superb TA)						
14	Caltech	2.78	3.09	Ability-- Some reservations about motivation and discipline	Ph.D.	Ph.D.	3.30	4.0 yr.
		(Letters and previous record were a good index of his performance. Bright and capable but undisciplined in some respects)						
15	UCLA	3.24	3.54	Not available	Ph.D.	Still a candidate	3.84	
		(Older student. Now 42. Had been around a lot. Ext. Has intellectual capacity, but lacks self-confidence and discipline in research. Has fallen into the unfortunate never-never land of a "professional student")						
16	Kansas St.	3.15		Strong	Ph.D.	Ph.D.	3.18 M.S.	4.0 yr.
		(Apparently a relatively weak Ph.D. student as earlier record predicted might be the case. But did finish Ph.D. in 4 yrs. after M.S.)						

APPENDIX I (Con't.)

Student	U.G. School	U.D. O.A.	U.D. Chem.	Letters	Degree Obj.	D. Earned	GPA	Total Time to Degree
17	Hunter Col.	3.80	3.63	Strong	Ph.D.	M.S.	3.61	2.5 yr.
		(Intelligent but not very dedicated to graduate career. Stopped at M.S. by her own choice, but might not have been permitted to continue in Ph.D. anyway. Research chemist at Vallecitos Atom. Lab.)						
18	UCLA	2.44	2.76	Not available	Ph.D.	M.S.	3.60	3.0 yr.
		(Terminated at M.S. at Dept. request. Undisciplined at that time, even though obviously intelligent. Failed German 1st time. Currently a graduate student in another dept. on campus, after 2 years in Peace Corps)						
19	Utah	3.75	3.68	Outstanding senior, but few slight reservations about motivation	Ph.D.	None	2.25	1 yr.
		(Poor course performance. Failed German 1st time. Dropped out after 1 yr. Shifted to Anthropology where he did well after make up of core courses. Rec'd M.A. 6/10/65)						
20	Grinnell	3.70	4.00	V. Strong	Ph.D.	Ph.D.	3.76	3.5 yr.
		(Developed into a very good graduate student)						

APPENDIX I (Con't.)

		U.D.						Total Time
Student	U.G. School	O.A.	Chem.	Letters	Deg. Obj.	D. Earned	GPA	to Degree
21	CCNY	2.96	3.59	V. Strong	Ph.D.	Ph.D.	3.88	4.5 yr.
		(Excellent graduate student. Currently on staff in Chemistry at UCSD)						
22	Illinois (1943)	3.12	3.20	From indust.	Ph.D.	Ph.D.	3.48	5.0 yr.
		(Average to below average graduate student. Started slow with B's but then came on sufficiently strong)						

ADDRESS: THE FUTURE OF GRADUATE FELLOWSHIPS AND OTHER ASSISTANCE

by: Hans Rosenhaupt, National Director
Woodrow Wilson Foundation

> *It is a mistake to look too far ahead. Only one link in the chain of destiny can be handled at a time.* Winston Churchill

Wytze Gorter has asked me to talk not about the immediate future but about the seventies. Let us applaud our friend for his wisdom in wanting to look beyond the immediate future. We are all so very much oppressed by the immediate, particularly the disturbing prospects of the fall of 1968, that it is necessary to raise our eyes beyond the nearby hills to the far mountains of the seventies. There is an additional advantage in looking to far ahead: By the time our prophesies mature we will either be dead or else the failing memory of old age will have erased all traces of our prophesies.

A would-be prophet is well advised to put himself down on the couch for a quick self-analysis. As he peers into the future, is he trying to judge dispassionately what will probably happen, or does he indulge in wishful thinking? I am a believer in the self-fulfilling prophesy, like a strong-minded friend who, when his wife was pregnant the first time, decided she was going to have a girl. She did.

It is not at all unlikely that we are in for a period of slow, steady attrition of fellowship opportunities. It can't be just a matter of coincidence that within a span of two years, four major fellowship programs have been severely curtailed: NASA, NSF, Title IV of NDEA, and Woodrow Wilson. The reasons given for the decision to curtail may vary. Deep down those who made the decision may have had even better motivations for doing what they were doing than they knew.

To begin with, we might as well face the fact that the honeymoon between the American people and higher education is over. The generous support of our colleges and universities ever since Sputnik has not resulted in a solution of many problems such as inner cities, civil rights--it has not even put us on the moon yet. In addition, the small minority of protesting students--draft deferred at that--have caused a visceral anti-intellectual reaction at the grass roots level. And then there are more specific reasons for a gradual drying up of fellowships.

College scholarships used to play an all-important role; part of the American mythology was the barefoot boy with cheeks of tan with a determination like young Jude the Obscure, for a college education, who would be given a scholarship and end up as president. There are still high school graduates capable of benefiting from a college education but deprived of the opportunity by the harsh facts of family economics. However, as a number of studies by the National Merit Scholarship have shown, only a small percentage of highly gifted youngsters are in that category. With the luxuriant growth of community colleges and with the burgeoning of special programs for the socially disadvantaged, that situation is improving.

I predict that in the seventies the particular problem of the fellowship student will have been drastically altered in the same fashion as the picture for the college scholarship student has changed over the last twenty years. The rapid growth of the number of graduate schools will provide increasingly easier access to greater numbers. Continued prosperity will enable sizeable segments of the population to pay their own way. Pressures from the public at large, as well as from business and industry, for more graduate education at public expense will result in increased fiscal support of graduate work and will thus result in lowering or even eliminating altogether tuition costs.

Perhaps the cost of graduate education will be further reduced by efforts toward greater economy of effort. I for one see no reason why so many subject matter courses are offered at two or three levels of academic difficulty--elementary high diving, advanced high diving, graduate seminar on high diving. A good teacher of young undergraduates manages to make his course attractive and profitable to a mixed bag of students, ranging all the way from genius to village idiot. Similarly, some courses could be offered for seniors or even juniors all the way up to Ph.D. candidates, provided only the examinations were adjusted according to the level of progress of the student concerned. As learning in the classroom becomes de-emphasized, more and more graduate students of the future may discover that their best teachers are found on the library's stacks, clad in buckram, and ready to speak to them at the turn of the page.

While graduate training may become less expensive, and the need for fellowship support less urgent, another factor, more potent than the ones mentioned before, may cause large numbers of graduate students to get along without the aid of fellowships. In the old, old days those who are now emeriti after graduating from college typically interspersed a few years of elementary or secondary teaching between college and graduate school. In teaching children his own dedication to the profession of teaching was tested. He also acquired respect for knowledge and apprehension over his own ignorance. He typically put money aside to tide him over graduate school. More importantly, he acquired a deep sense of being a functioning and connected part of not only the enterprise of education but of the grand enterprise of the human spirit.

What do our protesting young men and women seek today? Why are they trying to provoke us? Underlying their unhappiness and restlessness I sense a profound fear of being disconnected from the main enterprise. It is conceivable that many graduate students in the seventies will actually prefer the involvement of being teachers or research assistants to the splendid isolation of the fellowship-supported graduate students. The time may come--as it already has on some campuses--when our graduate assistantships will be in greater demand than fellowships.

The prospective recipients of our assistantships will, I believe, be psychologically ready for part-time employment. At the same time we will be glad to offer them assistantships. To an even greater extent than we do today, we will have to rely on young people to do our teaching. That may not be the most ideal solution to the problem of teaching college students, but it is not as catastrophic a development as a few wise men in the east want you to think. Even that bastion of quality teaching, Princeton University, has begun to ask itself whether callow youths must be taught only by highly trained teachers.

It is easy to predict that even the most prestigious colleges, particularly those connected with large universities, will make use of graduate students as part-time teachers. We can also predict that their students will gain in closeness to the educational enterprise what they lose in quality of teaching. Let us also prophesize--or vow--that we who direct the teaching of young part-time teachers will find ways by which we can improve their performance.

With your permission, I should like to stray off the topic for a few sentences. We have all heard so much about teaching versus research that we may have lost sight of the biggest issue, one that so far as I know has not been widely discussed--the long-range significance of research. To raise that question in a meeting of graduate deans is as heretical--or as foolish--as doubting the immaculate conception in a meeting of the College of Cardinals.

Yet as we peer into the distant future, even beyond the seventies, we may expect a gradual growth of doubt in the redeeming power of new research, accompanied by a growing interest in the application of old research. Even today we know a great deal, particularly in the natural sciences--enough to give us plenty of food, decent housing, fast transportation, easy communication. In some fields such as automobile transportation, we have not made any truly significant research breakthroughs for many years, and we already can build cars running many times as fast as is comfortable. As larger sectors of the population come to accept the fact that new research will not significantly change their lives, they will turn their attention to consolidating and to distributing more widely that which is known.

It may be heretical to say so today--but there is evidence to support the thesis that in the friendly contest between research and teaching, the latter may win in the long run.

Now if I may sum up: The nearest ridge on our road into the future, called fall 1968, looks forbidding and dark. This is a good time to raise our eyes to the mountains of the seventies, bathed in sunlight. Whether that sunlight is wishful thinking or self-fulfilling prophecy is up to us.

FOURTH GENERAL SESSION

THEME: "Review and Evaluation of Current Programs, Degree Requirements, Rules and Procedures: A Guide to Planning Emphasis"

PRESIDING: Fred S. Honkala, University of Montana

OPENING REMARKS

by: Fred S. Honkala

In our earlier sessions today we have tried to look ahead to see what the decade will bring us and how we can prepare for the inevitable changes that will be with us before we know it. And since going to graduate school is still a privilege to be won, and not a prerogative, we have talked about how we should admit graduate students and how we should care for them while they are studying. During this session we are going to talk about the review and evaluation of current programs, about degree requirements, and about rules and procedures, and how we should plan for all these considerations, which collectively relate to the graduate curriculum.

It has been said many times that there is nothing certain but change itself. For our graduate programs to keep pace with the increasing tempo of our present world, we must be constantly changing them. Change must come about from continuous and critical analysis of our programs. We cannot reach a plateau of satisfaction and then say that the program will operate itself from then on.

This constant analysis that we make must be very critical indeed. There are many more factors influencing our education today, graduate as well as undergraduate, than there have been in the past. Some of these factors are just emerging and are hard to recognize, but this is no excuse--we have to ferret them out and consider them all; we dare not overlook one. We must plan more thoroughly than ever before in the initiation of new programs as well as for the health of ongoing programs. This planning cannot result in over-rigidity or over-structuring. We are faced with a situation that demands more and more planning, and yet, in general, less and less rules and procedures, and a maximum of flexibility. To attain this happy condition will tax the ingenuity of us all.

We are fortunate, then, this afternoon to have four presentations that relate to this quandry in which we find ourselves. How should this constant program review be carried out? What should be the important elements in this program review? Dean Ralph B. March of the University of California at Riverside will discuss this question.

If we are reviewing and evaluating current programs, then we must indeed consider the fields of study for graduate degrees. Most of us cannot offer every graduate program suggested to or requested of us. Then we have to weigh the merits of yesterday's graduate program in Latin, as compared with today's program in Urban Studies, and tomorrow's program in who-knows-what---

perhaps in the economics of the ocean floor. Dean Philip M. Rice of the Claremont Graduate School will discuss this subject for us.

Then we come to still another topic which is dear to the hearts of deans, and certainly burning in the hearts of students; namely, degree requirements. Do we need all of them to maintain the quality of graduate education? I don't know. I know we need to maintain the quality of graduate education, but whether more and better degree requirements or something else will do it, I don't know. I am open to persuasion. All I know is that in my own University, if departments and schools and students ever agree on foreign language requirements, and if we terminate that debate, I will feel that I have lost a tried and true friend. Dean George P. Springer of the University of New Mexico is going to tangle with this subject.

And last, but certainly not least, we have Mr. Robert L. Heiny, a graduate student from Colorado State University with his observations on rules and procedures in our graduate schools, or the un-rules and un-procedures that they should have. This should be the other side of the coin. Certainly it is appropriate that he should speak to us, and I am sure that many of us have, in one way or another, sought the advice and taken advantage of the reactions of graduate students, and if we don't, I think that we are missing a bet. One of my most helpful sessions is a quarterly meeting of the Graduate Council to which I invite, through our newspaper, any graduate student who wants to attend. I make sure to have a large enough room and adequate coffee and doughnuts on hand, and before we know it, two hours have passed, and we have cleared the air on many things, and generally we have re-opened the foreign language requirement discussion.

It gives me now great pleasure to introduce at this time Dean Ralph B. March of the University of California, Riverside, who will speak on "Elements in a Program Review." Thank you very much.

ADDRESS: ELEMENTS IN A PROGRAM REVIEW

by: Ralph B. March
University of California, Riverside

In planning for the future we are all concerned, both generally and specifically, with the complex problem of striving for academic excellence and improving the quality of graduate education. Much of our recorded information on the quality of graduate education arises from a series of national studies, the most recent of which is Alan Carter's An Assessment of Quality in Graduate Education. In his Foreword to Carter's work, President Logan Wilson of the American Council on Education states: "This inquiry was intended not merely to supply a conversation piece in college and university circles but rather to be an aid to those departments and institutions, not to mention other educational agencies, which are seriously concerned about the improvement of graduate education. To effect improvement, a first step is to appraise existing strengths and weaknesses. An Assessment of Quality in Graduate Education should be a very useful book for all who engage in this complex and vital endeavor."

Although a first step may be the appraisal of strengths and weaknesses through periodic comparative national assessments of quality in graduate education, an even more appropriate and concurrent step must be the provision for institutional self-analysis and review of graduate programs. It is my purpose this afternoon to outline some preliminary thoughts on possible elements in a program review and its potential contributions to the improvement of the quality of graduate education. The ultimate thrust of such reviews should not be just an assemblage of facts, on the basis of which an appraisal of strengths and weaknesses can be made, but rather the identification and feed-back of information directed toward accelerating the improvement of graduate programs both individually and collectively.

The CGS and AGS statements on graduate degrees identify the quality of faculty involved as being of the highest importance in establishing and maintaining graduate programs. Measures directed toward increasing faculty strength are without question of the highest priority in improving graduate programs as well. Because of the complex and specific relationships of faculty matters to each institution, I have chosen only to identify this area as being of primary importance and to direct my remarks to other elements of a program review.

Most institutions rigorously evaluate new programs of graduate studies at the time of their establishment. As an example of typical information required, I am including, as Appendix I, the outline for the preparation of proposals for new degrees and programs in use in the University of California. One is led to believe, however, that quite generally this is the only time that most programs are reviewed and analyzed as a whole by the administration, the general faculty, or even the participating faculty. Where this is the case, the initiation of periodic program reviews, approximately every five years perhaps, deserves serious consideration. The question remains, under what sort of guidelines should such reviews be carried out?

Though one hesitates to recommend any new report, a review report by the department or participating faculty group seems inescapable. A logical starting point for a review might be the original proposal for the establishment of a program or an analogous summary of the status of the program at some previous time to the review report. The review report should not be just a statement of requirements and resources but its purpose should be both to analyze the developmental changes in the program as they relate to its improvement and to project a five-year plan of future development.

Major areas of consideration under previous development might include: a) program organization and requirements; b) student admission, guidance, and evaluation; c) preparation for research; d) preparation for college and university teaching; e) interaction with other fields; f) faculty; g) courses; h) equipment and facilities including library; i) development of student support; and j) analysis of progress and problems. Such a review report would not only assure self-analysis by a department of what it is and has been doing and promote appropriate change rather than the fixing of practices by tradition but it would also identify innovations which might be appropriate for application to other programs. For example, the following I am sure would be of general interest: a) mechanisms and criteria of evaluation for predicting probable success of students in relation to admission, b)information provided to prospective students, c) orientation and guidance of students before initial registration and in the period before and after advancement to candidacy,

d) mechanisms for early and continuing determination of success potential and correction of deficiencies rather than elimination from the program, e) apprenticeship systems in both research and teaching including involvement of advanced graduate students and postdoctorals, and f) integration of resources for student support.

The second part of the report which projects future development might include information on the following: a) enrollment projections, b) new fields of emphasis or degree programs, c) requirements for faculty and staff, equipment and facilities, student support, special resources; and d) anticipated program changes, experimental programs, and potential problems.

One might consider that such a departmental or faculty group report was in itself sufficient for a program review. However, there are additional inputs which should be components of a total evaluation. One of these is an administrative input. For example, the Graduate Office is in a position to provide such useful statistics as application, admission, and registration figures; origin of students; degrees awarded; student attrition; progress toward degree objectives; distribution of courses and numbers of units taken by students; and sources and amounts for research and student support.

The final contribution is one from graduate students themselves and it is becoming increasingly apparent that this should not be neglected. For example, we have recently instituted an evaluation questionnaire which is provided to all doctoral recipients. We hope to extend this program to master's recipients and especially to students who terminate their studies without accomplishing their objectives. The questionnaire includes questions on the following major topics: a) choice of career and institution, b) courses and grading, c) requirements and organization of degree programs, d) departmental and campus organization for graduate study, and e) student support. The questionnaire is too long to be included in the Proceedings but I would be pleased to make it available to anyone who may be interested. From our initial observations, a significant input from the questionnaire to the improvement of graduate study seems assured.

In summary, I believe that initiation of a system of periodic institutional analyses and reviews of graduate programs is highly essential. Such reviews have real potential for a basic input to the improvement of the quality of graduate education. Institutional reviews should be directed toward identification of innovation and continuing and projected development as related to improvement of quality and should not merely be a statement of requirements and resources for analysis of strengths and weaknesses. A review should not be an inquisition but a mechanism of assistance in accelerating progress toward excellence. Input to the review should come not only from the department but also from administrative sources and graduate students. The review should be useful to both the department and institution as an analysis of the continuing development and projected plans in a particular program but even more importantly should have the potential for identifying those practices and innovations which have broader implications to the improvement of the quality of graduate study throughout the institution.

APPENDIX I

ACADEMIC SENATE

COORDINATING COMMITTEE ON
GRADUATE AFFAIRS

The following outline for the preparation of proposals for new degrees and programs is provided as a guide to the organization of the proposal and the kinds of information desired by the Coordinating Committee on Graduate Affairs.

Heading
Date

A proposal for a program of graduate studies in (e.g. English) for the (e.g. M.A., Ph.D.) degree(s).

Section 1. Introduction.

A concise statement setting forth the following:

(1) Aims and objectives of the program.
(2) Historical development of the field (if a new degree) and/or historical development of departmental strength in the field (if an already established degree).
(3) The timetable for development of the program.
(4) Relationship of the program to related campus and university programs.
(5) Projected need.

Section 2. Program.

A detailed statement of the requirements for the program including the following:

(1) Undergraduate preparation for admission.
(2) Foreign language.
(3) Program of study.
    (a) Specific fields of emphasis.
    (b) Plan(s) (e.g. Masters I and/or II; Doctors A or B).
    (c) Unit requirements.
    (d) Required and recommended courses.
    (e) Related fields of study.
(4) Qualifying examinations - written and/or oral.
(5) Thesis and/or dissertation.
(6) Final examination.
(7) Explanation of special requirements over and above Graduate Division minimum requirements.
(8) Relationship of master's and doctor's programs.

Section 3. Staff.

A detailed statement on present staff and immediately pending appointments. This should include a list of staff members, their ranks, their professional qualifications, typical major publications in previous five years, and total publications.

Section 4. Courses.

A list of present, proposed, and projected courses including instructors and supporting courses in related fields. The relationship of these courses to specific fields of emphasis and future plans.

Section 5. Equipment and facilities.

A detailed statement on the available and projected equipment and faculities for the support of the program.

Section 6. Library facilities.

An analysis of the available and projected library facilities for the support of the program.

Section 7. Changes in Senate Regulations.

The proposal should state clearly whether or not any changes in Senate Regulations at the Divisional level or in the Legislative Assembly will be required. If there are (e.g. for all proposals for new degrees), the complete text of the proposed amendments or new regulations should be provided.

Section 8. Changes in Chapter X of the Standing Orders of the Regents.

The proposal should state clearly whether or not any amendments to Chapter X of the Standing Orders of the Regents will be required. If amendment is required, for example for a program leading to a new degree, the text of a recommended amendment, including the recommended letter abbreviation for a new degree, is to be supplied by the initiating unit.

ADDRESS: FIELDS OF STUDY FOR GRADUATE DEGREES

by: Philip M. Rice
Claremont Graduate School

An old adage states: "one must start with what one has and proceed from thence to the next step." In planning for graduate education in the seventies, one might forego the truism and conjecture that the decade hence would begin with a clean slate. The embroglio brought about by the draft, cutbacks in federal funds, and student unrest (acutely disturbing in its more violent stages--disengenuous but nonetheless disruptive in its legal aspects), reminds us that the normal processes in the evolution of graduate programs may be due for drastic changes quite unrelated to academic rationale.

For this reason, any review of the present status of our degree programs that is predicated on developments of the past few years presupposes some risk. It is quite possible, for example, that the most obvious characteristic of the preceeding decade: "growth" will be an undistinguishable trait in the seventies and that degrees structured by faculties within disciplines will give way--not to interdisciplinary, coordinated, or multidisciplinary programs--but to nondisciplinary ones created and "Managed" by students.

Portents of major change notwithstanding, a brief review of the past may still provide a clue for the present and serve as a springboard for the future. Growth, in terms of numbers of graduate students may not be a continuing factor but it would not necessarily follow that the degree curve, particularly at the doctoral level, would therefore decline. Modification of requirements, including the proclivity to change the nature of the dissertation, may shorten the time factor and partially offset an enrollment decrease. Curtailment of funds for fellowships and assistantships might have the opposite effect although that contention can and has been debated.

The concern here is less with the foregoing, however, than it is with modifications to the number and type of degree programs. If one can gauge the future from present patterns, it seems almost inevitable that the structure of degrees will continue to change and, perhaps, dramatically so. The trial run of intermediate degrees; the bombardment against "over-specialization"; the movement towards interdisciplinary, interinstitutional, and cooperative programs; and the very dynamics involved in developing frontiers of knowledge carry with them an impact that is as yet difficult to assess.

One bar to proper assessment is the absence of reliable and detailed records going back over a period of years. The Office of Education's publication Earned Degrees Conferred and more particularly, the National Academy of Sciences, Doctorate Recipients from United States Universities are landmarks in data helpful in relating such productivity to inter or multidisciplinary programs. Although reporting methods have improved, it is unfortunate that less attention has been given to degree subfields in the social sciences, humanities, and the arts than to the physical sciences, engineering, education, psychology, agriculture, and the health sciences.

An examination of the Office of Scientific Personnel report on Doctorate Recipients from United States Universities, 1958-1966 will provide some evidence of the startling growth that has occurred in some areas and the numerous modifications (many due to reporting procedures) that have taken place in others. One would not, however, gain the impression that much has happened in terms of new programs. Omitting the categories "general" and "other", there are 153 specific fields and subfields in which the doctorate was awarded in 1966 as against 121 in 1958. The difference is due less to the increase in doctoral fields than to a change in the reporting procedures for language and education.[1]

The following table provides a more accurate picture of the changes that occurred during the nine-year period.

FIELD	Total Sub Fields	New Sub Fields Reported Since 1958	Fields Dropped Since 1958	Variation
Mathematics	10	1	-	+1
Astronomy	1	-	-	-
Physics	12	2	2	0
Chemistry	8	2	-	+2
Earth Sciences	10	1	-	+1
Engineering	13	-	-	-
Biological Sciences	15	2	-	+2
Agriculture and Forestry	6	-	-	-
Health Sciences	10	2	2	0
Social Sciences	10	-	-	-
Psychology	11	1	-	+1
Arts and Humanities	15	*7	-	+7
Professional Fields	7	-	-	-
Education	29	*20	-	+20
TOTAL	157	38	4	34
Less changes in Educ & Lang	157	11	4	7

The total number of subfields includes all in which degrees were granted during the period 1958-66 except "general" and "other" and those fields which are obvious combinations of fields later reported separately.

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[1] Fred D. Boercker (gen ed.), Doctorate Recipients from United States Universities, 1958-1966, Publication 1489, National Academy of Sciences, Washington, 1967. The data in this paragraph and the accompanying table are derived from Table 1, pp. 5-9. The difference of 32 between the 1958 and the 1966 figures is partly accounted for by pproximately 7 language and 20 education degrees that were placed in general categories in 1958 but were broken down from 1962 on.

If one compares the fields that have grown in doctoral production by a factor of at least four with those having the greatest numerical growth (i.e. 100 or more), one can gain a clearer view of what has happened to our doctoral fields.

Fields	Greatest Numerical Growth	Greatest Percentage Growth
Mathematics	Algebra (101) Analysis (109)	Algebra Geometry Number Theory Computing Theory and Practice Other
Physics	Elementary Particles (122) Solid State (188)	Electromagnetism Fluids Thermal Elementary Particles
Chemistry	Organic (251) Physical (153)	Nuclear Theoretical
Earth Sciences	- - -	Structural Geology Hydrology General Other
Engineering	Civil (184) Chemical (329) Electrical (355) Eng Mechanics (139) Eng Physics (118) Mechanical (199)	Civil Electrical Eng Mechanics Eng Physics Sanitary Other
Biological Sciences	Biochemistry (209) *Physiology (124) Zoology (127)	Biophysics Biometrics & Biostatistics Cytology Embriology
Health Sciences	- - -	Public Health
Social Sciences	Economics (275) Sociology (100) P. Sci. and Pub Adm (156)	- - -
Psychology	Clinical (122) **Experimental (100)	Personality

Fields	Greatest Numerical Growth	Greatest Percentage Growth
Arts and Humanities	History (327) English (333) Philosophy (100) Speech and Dramatic Arts (134)	Other
Professional Fields	Business Administration(250)	Other and General
Education	**Educ Admin (700) Others omitted	Omitted

Notes: (1) The numbers in parens in column two represent the numerical increase in doctorate production 1966 over 1958. **Estimated.

(2) Since almost all education fields were listed as general in 1958, data for education is omitted except for the very obvious increase in Education Administration and Supervision.

(3) *Retained as a combined field (plant and aminal).

In five fields, the percentage growth has been most pronounced in the category designated "other," an indication, perhaps, that we can expect to see several new fields separately tabulated in the near future. It is quite possible that additional fragmentation may take place in those areas where existing sub-fields have shown the greatest numerical growth during the past decade but it is more probable that present trends may be offset by an increasing emphasis on interdisciplinary, interfield, and multidisciplinary programs.

As Dean John Perry Miller pointed out in the 1965 report of the AGS Committee on Policies in Graduate Education, we need a clearer understanding of the conditions under which the interdisciplinary and multidisciplinary programs are established and the problems associated with them.[2] In the experimental stages and in almost all area studies programs, the interdisciplinary degree is held to the master's level. There are, however, many instances in which an interdisciplinary program becomes a recognized field in its own right and continues through the doctorate and postdoctorate. Biochemistry, biophysics, comparative literature, and international relations are but a few examples. One might argue that some of our long-established fields such as history and philosophy are interdisciplinary fields by nature and that even structured degree programs drawing solely from the general field retain interdisciplinary aspects.

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[2] Journal of Proceedings and Addresses of the Seventeenth Annual Conference of the Association of Graduate Schools in the Association of American Universities, p. 42.

The general trend would, however, appear to be in the opposite direction. When an interdisciplinary program is formed as a means toward combining research or training needs that cannot be found in any one field or conventional department, there is a tendency--if the program proves successful--to construct a new discipline around the combination. In some institutions, international relations has followed this track and it may be that the broad field of administration (vis a vis business, public, or educational administration) will follow a similar pattern. Biophysics, biochemistry, and physiological psychology are more obvious examples.

In order for programs, which begin their career as interdisciplinary, to become valid fields for the doctorate, it is generally thought that there must be both a common body of knowledge and a common or integrating research method. It is doubtful that each factor is or can be present in African, Asian, American, Slavic, in other area or in Islamic and medieval studies. Consequently, even when the doctorate is offered, a student generally takes his degree in a conventional field where he can utilize the common body of knowledge around which the area program is built but employ the research techniques of an established discipline. While changes in the concept of dissertation structure may offset this factor in the seventies, a concomitant alteration in hiring practices would be necessary before the newly derived Ph.D. would be a welcome addition in most university departments. Illustrative of the latter statement is the fact that one, relatively small graduate school turns out in one area study program, several times the number of Ph.D.s as are credited nationally for all area studies programs from all universities combined. The simple truth of the matter is that an individual receiving such a doctorate finds that he must represent it as one in a field around which a regular departmental structure exists if he is to find a job at all. Even the liberal arts colleges which boast of their needs for teachers of breadth are as sticky on this issue as university departments based on specialists.

Other, equally serious problems have mitigated against the successful operations of the interdisciplinary program. Many of these are organizational in nature and their structures are worthy of a special study. It is not always clear as to what is meant by the terms interdisciplinary, interfield, multidisciplinary, and coordinate although all may call to mind some sort of program framework which encompasses more than one recognized field. In some instances a departmental structure will be used to house such programs, in others a single director will act as coordinator without any specified faculty, and in some a college or university wide committee will provide the necessary framework. Others range from an informal, inter-departmental arrangement to an inter-institutional organization with a relatively elaborate administrative staff.

The goal of interdisciplinary programs is no less clear and the reasons for their establishment, as Dean Miller has stated, are several. It is not unreasonable to expect that, time and staff permitting, we will see an increase in the number of interdisciplinary programs created, as Dean George Springer for one is attempting to do, to satisfy the needs of a particular student. Since each such instance requires a different committee, the operation can be an expensive and time consuming one albeit perhaps a necessary adjunct of graduate education in an era when students increasingly oppose stereotypes, academic discipline, tradition, and form.

Somewhat similar to the New Mexico effort is the interfield or hyphenated degree. When properly conducted, the interfield degree persupposes a more integrated course of study that the conventional major-minor and at the same time attempts to aviod the pitfalls of the dual degree which has been characterized "as a doctorate composed of two master's taken simultaneously." Unlike the interdisciplinary program designed to combine the research and training needs of more than one field, the interfield degree provides an almost equal exposure to two fields of knowledge within the conventional departmental framework. Consequently it has some of the advantages of the interdisciplinary program in those areas where there is not a sufficiently large body of students to merit the establishment of an entirely new program. Since the combinations can be more numerous than could obtain even under a series of organized, interdisciplinary programs it provides a flexibility that could not otherwise be obtained.

An interfield dissertation normally lies more in one field than another but attempts to utilize the subject matter and, to some degree, the research techniques of both. Essential to its success is a body of faculty who are themselves willing to move across departmental lines, to serve on the dissertation and examining committees, and to retain an awareness of the values, goals, and methodology of the companionate field. Proponents of the degree maintain that the student is "made more aware of and more willing to see the overlap between several fields, that his methodological tools are expanded, and that he is less assertive in his defense of a single approach to knowledge.

The placement of the interfield doctorate poses some of the same problems as confront the Ph.D. in area studies. The small liberal arts colleges and the junior colleges are somewhat more receptive to the interfield degree than to one in area studies since the fields encompassed in the former fit into conventional nomenclature and conform to existing programs. The recipient of an interfield degree, however, is apt to be suspect in larger colleges and universities where he is viewed as one who was adept in neither discipline and was thus accorded a degree by two departments so that both could absolve themselves of the real blame for the product. The best solution to that dilemma is, of course, the same as it is for placing any good student; i.e. the integrity of the faculty and the degree-granting institution.[3]

In spite of the problems facing interdisciplinary degrees, by whatever term they may be called, it seems likely that they will become an increasingly vital force in the future and serve as an offset to the pattern of specialization so apparent in the past. Much more needs to be done, however, in developing a rationale for such degrees, in studying the conceptual basis for the programs as well as their organizational structure. Like many other facets of graduate education, interdisciplinary programs have developed along Topsy lines.

As an answer to some of the problems that loom ahead, they deserve consideration. As an integral part of graduate education, if they are to become such, we need to know what they are and what they are likely to be.

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[3] The author of this paper is indebted to Professor George Blair of the graduate faculty in government for formulating the concept of the interfield degree and to Professors French Fogle and Paul Sultan of Claremont Graduate School, for their helpful remarks.

ADDRESS: DEGREE REQUIREMENTS: ARE THEY ALL ESSENTIAL TO MAINTAIN THE QUALITY OF GRADUATE EDUCATION?

by: George P. Springer
University of New Mexico

Mr. Chairman, I see from the program that my topic has the longest of all titles--13 words. As if this weren't enough of an embarassment, a discussion of degree requirements can hardly avoid mention of the venerable language requirement--the most interminably debated of all requirements. I hope my colleagues will forgive me both these transgressions.

If we survey our standard graduate degree requirements and try to classify them as to their nature, we can discern two types: quantitative requirements and qualitative requirements. Let me speak of the quantitative first. It seems to me that in American universities we have built up a strong tradition of guaranteeing quality by an insistence on quantity. Our bulletins and catalogues specify a minimum number of hours or courses, credits or years, during which a student must be registered and engaged in specific activities on campus before he can obtain our degrees.

Contrariwise, we have shied away from the concept of granting a degree simply to reward knowledge no matter how acquired but tested by an examination, a thesis, or a dissertation. Yet this approach is a possible alternative. This is evident from some letters I used to get from other countries in which students asked whether they could submit a thesis and hope to get a doctorate for it from my university. Our preference of having students on the campus and giving them exposure to our own professors and facilities has a reason. It has to do with income from tuition and alumni donations. Consequently, we grant our degrees on this quid pro quo basis. Since we attach local institutional pride to our degrees, we have never gone very far in the direction of the English system of extra-mural examinations under which a student in the United Kingdom or in the Commonwealth can obtain, for instance, an extra-mural degree from London University. Now, in America if you want a degree from a college or university, you must spend some time on its campus and identify with it emotionally, correspondence courses and degree mills notwithstanding. That you may have acquired great knowledge through independent study, travel or work experience, may be quite irrelevant to meeting degree requirements!

Aside from the major quantitative requirement of elapsed time, we impose other quantitative criteria: most of us number courses by level; we specify that for the higher degrees so and so many courses must be taken above a certain level. Many of us require credits to be proportioned between major and minor fields. Quantitative criteria are applied to the concept of residence which involves not only a minimum span of time to be spent on campus, but the intensity of work accomplished. Those of us blessed with many part-time students tend to insist that at some time during a doctoral career a student must become "full-time", however we may define that. Yet another example of quantifiable requirements are the time limits--which inhibit the degree "stretch-out." In the case of my school, we allow five years for the master's and ten years for the doctorate. Many private institutions impose more stringent terms.

But it is necessary briefly to make one other distinction, that is between Graduate School and departmental requirements. Obviously, this is a living thing with most of us and means, at least to me, that school-wide requirements constitute a floor, a lowest common denominator, to be observed by all departments. Departmental requirements, on the other hand, are built on this floor, and are incremental. Aside from these requirements which I have called quantitative, there are the others which are definable as qualitative. Theses, qualifying, comprehensive and language exams fall under this heading. I need not bore you with a description of these.

Let me now try to analyze the relevancy of all these requirements to what we call the quality of graduate education. But quality in graduate education is an elusive property, and even so respectable an effort as Allan Cartter's has left some people with qualms. Can it really be measured? How can it be guaranteed by requirements?

In considering the necessity and shape of certain requirements, I think that it makes a great deal of difference whether we address ourselves to the highly selective, relatively small, well-staffed, well-endowed, full-time-student-populated graduate schools (call this Model A); or alternatively to the permissively admitting, spreading, under-staffed, poorly endowed, part-time-student-populated schools, (call this Model B). Furthermore, does it not matter whether we think of a basically Arts & Sciences graduate school (Model C) as compared with one which may accommodate within its jurisdiction Education, Business Administration, Social Work, Engineering, and similar professional disciplines, besides the Arts & Sciences (Model D)? I have posed the questions in terms of extremes. In reality most graduate schools are somewhere along the spectrum, but I think this polarized approach can help us visualize the distinctions better. Speaking from some experience, I would suggest the following hypothesis: The smaller and more uniform the student body, and the more limited the disciplines available for higher degrees (Model AC) the more flexible and limited can be the degree requirements. Contrariwise, the more diverse the student body and the offerings, (Model BD) the more complex, numerous, and perhaps rigid become the requirements. I am not at all certain I can test this hypothesis successfully other than by appealing to everyone's common sense. Obviously, in a one-to-one student-teacher relationship, on Mark Hopkins' log or in Plato's Academy, formal written requirements are nonsense. What guaranteed the quality in these instances was the subject matter mastery of the teacher and the interest of the student. Conversely, under mass-production conditions, SOME ground rules and guidelines naturally arise, are refined and adapted by local needs, but with constant reference to other comparable institutions. What I wish to stress here is the dynamics of this process. All of us, surely, are aware that at least some minor changes occur annually in most graduate school requirements. Consider that in the nineteenth century in this country a master's degree was, like in England until very recently, an honorific title, granted upon payment of a fee "after a few years of respectable living" (to quote Edgar Furniss of Yale), following the baccalaureate. The doctoral thesis, on the other hand, had to be published in those years at the student's expense, of course. This perspective into the obsolescent past may give us the vision to look upon our present requirements more sensibly, since we know that they are bound to change.

What changes can we reasonably look forward to?

First, there are those caused by advancing technology. That covers a lot of ground, of course, from Xeroxing of dissertations to new audiovisual teaching methods. For example, having now been assured that Xerox 1024 Bond paper has a life expectancy of no less than 150 years, we are permitting its use. This makes life much easier for those who must write formulae and draw sketches. Given the fact of compulsory dissertation microfilming, we would consider further changes in these requirements.

Secondly, and more important, is a related change which I can foresee as having major impact upon the elapsed time type of requirement: Progress in learning theory and its applications. At present, it seems to me, we are still in the infancy of measuring and increasing the efficienty of learning. We are often fuzzy about our objectives in a particular course, or in the manner in which a course fits into a definable curriculum. Much progress can be made along this front, and as it is achieved a reduction in time requirements may become possible.

Thirdly, the dynamics of our disciplines will affect requirements. I am told that in Electrical Engineering ten years ago a semester course in antennas was a must. Today, a couple of lectures suffice on this topic. Along similar lines, my Graduate Council just voted to reduce the minimum hours required for a Master's in the five Engineering fields from 32 to 30. New interdisciplinary fields will surely alter our ideas on "major-minor" distributions.

Fourthly, the enforcement of requirements itself leads to certain speculation and changes. For instance, what do we mean exactly by insisting that a doctoral dissertation be an "original peice of work?" How do you measure originality and then enforce it? Are we not hypocritical in sticking with this old formula knowing that what we give doctorates for most of the time is for a workman-like job devoid of much novelty? I suspect that the whole new trend toward the new degree intermediate between the master's and the doctorate (call it the Candidate's Degree or the Master of Philosophy) grew at least in part out of the conviction that the Ph.D. dissertation and the research degree awarded for it was an unreasonable requirement FOR SOME people, namely, the so-called ABD's.

The enforcement of existing language requirements, whether by ETS exam or otherwise, similarly leads us to reflect on the sense of it all. How much actual use of the languages is made before or after the exam for the avowed purpose of serving as a research tool in most fields? You know the answer to this. And yet, I would not initiate abolition of this requirement on my campus at this time, because of the misinterpretation which such a move would be subject to by my peers. Some of them would surely feel that I am lowering rather than raising standards by abolishing this requirement. Perhaps I lack the courage of my convictions. Perhaps it is because I am a linguist. But there are some things in which I believe the Graduate School of the University of New Mexico should NOT take a leadership role among its peers. And the language requirement is one of these. On the other hand, I would not mind a full-dress review of it in the faculty if they wish to initiate it. At least we'll have a few entertaining sessions; and some original thoughts might shed some light on this tired topic. But I doubt it.

Fifthly, our students may have something soon to say about our requirements. An advanced, older doctoral candidate wrote on a recent questionnaire on the draft which I handed out: "The Ph.D. residence requirement is the product of ignorance and self-delusion." I should have him in and have a man-to-man talk except that the questionnaire was ananymous and I cannot find him; but conceivably he's got the seed of an idea.

I have suggested five possible stimuli which seem to me apt to affect future requirements: (1) technological change, (2) learning theory and application, (3) changes in disciplines and their administrative alignment, (4) the constant review prompted by the enforcement of requirements, and (5) student interest and action. I am sure there are others, for instance, a general teaching requirement for doctoral candidates. How these changes will operate specifically is hard to predict. But if current changes in requirements on my own campus are any index, I am rather optimistic that our reforms will enhance quality or at least leave it unaffected, but not lower it. Quality will be affected much more severely by things other than formal requirements, to wit: faculty salaries, faculty-student ratios, research and fellowship support and admissions policies. These, I submit, bear little direct relationship to what, traditionally, we call "requirements."

ADDRESS: OBSERVATIONS ON RULES AND PROCEDURES OF GRADUATE SCHOOLS

by: Robert L. Heiny, Graduate Student
Colorado State University

As a graduate student at Colorado State University, I will express my views on the rules and procedures of graduate schools, specifically as a student in the Statistics Department. The observations will be presented in five categories: technicalities, length of program, examinations, foreign languages, and emphasis.

Technicalities

In the graduate program there are certain steps on "red-tape" which the student must complete to obtain his degree. These steps include filing a program of study--the "blue forms" of Colorado State University, forms for results of examinations, forms for admission to candidacy and others.

At CSU these procedures are well publicized and generally well organized. In the CSU graduate catalog, the steps necessary for completion of a degree are systematically spelled out with deadlines well defined. Failure to complete these steps can be blamed only on the student's own negligence. As a result, I have heard very few complaints about these specifications. I believe CSU's example could be well taken by those colleges which have the problem of many graduate students failing to complete these steps before the due dates.

Length of Program

Recently I have seen polls where the average time from the bachelor's degree to the Ph.D. is quoted as 7-8 years. This gives a false picture of the actual situation since these polls include those people working for their Ph.D.'s in summers and on a part time basis. I would expect the average for the full time student to be close to 4-5 years which is certainly not unreasonable.

If there is a problem with length, and I'm not convinced it is a problem, part of this could be attributed to the department's failure to outline the required course of study necessary to obtain the degree. I know of one department at CSU that adds courses each year and every student is obliged to take the new courses regardless of his progress towards the degree.

I realize that during a four-year-period some change of program is inevitable and a student should expect to have some courses added or changed. The department at CSU which I mention has had two students still taking coursework in their fifth and sixth years. As a result this department has lost four top notch graduate students in the last year. In fact a department of this type contributes to the "professional student" image. As Oliver C. Carmichael states in his book, Graduate Education, "uncertainty drives away the ablest student."

A possible solution to this problem is to have the graduate school require the departments to file a proposed course of study for each student early in the program. This procedure would force the departments to organize their program and tell the student what is required of him. On the other side of the coin the departments will argue that in some instances it is late in the plan before they can determine the student's weaknesses. Therefore, the departments are not able to file a program of study until they have had a chance to evaluate the student. To answer this claim, I propose the diagnostic examination which I will discuss in a few minutes.

Examinations

Graduate students have raised questions about the examinations in graduate schools and their purposes. Some students complain that everything rides on one examination and it is possible to be flunked out of the program due to one poor performance even though the student may be capable of finishing the degree. Others complain that examinations serve no purpose, that the examinations are used as an initiation for the students.

Again I fall back on my experience in the statistics program at CSU. I will outline the examination schedule as used in the department which helps solve some of the graduate students' complaints.

After two years of coursework, the department gives a qualifying examination prior to the Master's Degree. This examination is written and is taken over material given in the courses. The student may receive one of the three grades: (1) passes and is able to continue for his Ph.D., (2) passes but is unable to continue work toward the Ph.D., (3) fails and is unable to receive the Master's. This examination together with performance in classes helps the faculty weed out those students incapable of doing work necessary for the Ph.D. Thus the student who is not going to receive a Ph.D. is not strung along wasting his and the faculty's time. Also his career does not hinge on his performance on one examination for the department considers his achievement in coursework as well.

For those students receiving grade (1), a preliminary examination is given after completion of coursework for the Ph.D. This examination is divided into written and oral parts. It serves as a tool for requiring the student to review all the material taken. It also enables him to tie loose ends together and better understand the ideas and concepts in his field. This examination is not used to flunk out students except in extreme cases. The majority of the students completing this examination have found it to be a valuable learning experience.

The third examination is the traditional final oral defense of the dissertation. This oral is an examination over the dissertation and concepts directly related to the work. That is, it is not an examination which gives the committee a chance to quiz the student on all materials and concepts in his field since this has been done in the preliminary examination. I believe this system of testing is an effective instructional program as it helps rather than hinders the student in his preparation for the degree.

As I mentioned before, a diagnostic examination can be given to entering graduate students to help determine at what level they should begin. Since new students have a wide variety of backgrounds and learning, the exam would be designed to pick up these differences. This examination would test the student on his understanding of the core materials and his preparation in the field of study. The department could use this examination along with transcripts and evaluations of his previous work to form a course of study for the student and hence speed up the filing of blue forms. This examination would point out those students who are capable of beginning a four or five year program for the Ph.D. and point out those students who need to take additional lower level courses to strengthen weaknesses.

Foreign Languages

Foreign language requirements are a sore point with graduate students and graduate faculty alike. At Colorado State University, the requirements are determined by the individual departments. This approach helps solve the problem of imposing a blanket requirement on a group of departments with different needs. To illustrate I would like to give an example of how this decision may work to the advantage of the student and his program. At CSU the mathematics and statistics sections are one department but are allowed to make their respective decisions on policy. Mathematics is a field where much work has been done in France, Germany, and Russia. The work is found in foreign journals many of which have no English translation. Therefore, the mathematics section requires a reading knowledge of two languages to be selected from French, German or Russian. This requirement will help the Ph.D. student in his research in mathematics.

However, most of the work in statistics has been done in England, the U.S. and Russia. The majority of the work in Russia is written in two technical journals both with an English translation with a one year time lag. Since the statistician has very little need for foreign languages, the statistics section requires no language.

An interesting paradox appears in a poll conducted by Bernard Berelson and recorded in his book, Graduate Education in the United States. Berelson asked graduate deans, graduate faculty, and recent recipients of a Ph.D. their opinion of the following two statements (their reactions are recorded under the statements):

(1) The foreign language requirement at the doctorate level has come to be a form without much substance in a sizeable proportion of cases.

	Deans	Faculty	Recipients
Percentage Agreeing	71	75	75

(2) Leave the foreign language requirements up to each department rather than the graduate school as a whole.

	Deans	Faculty	Recipients
Percentage Agreeing	23	52	63

Depending on how you interpret "a form without much substance" it appears there is a contradiction here. If the phrase is interpreted as meaning that all Ph.D. students should take languages but the requirements are not rigidly enforced, then the student should be required to take a more comprehensive course in each language and actually have a reading knowledge in that language. If a form without much substance is interpreted as meaning the requirement does not meet a need of the student in a sizeable proportion of cases then the major contributing factor is probably the varying needs of different disciplines. Therefore, the second statement and CSU's approach is the logical solution.

The language requirement should fulfill some practical need for the graduate student. That is a student should take foreign languages if he is interested in them or if he needs them in his field. However, the student should not be forced to take a language merely because tradition dictates it or because people feel he is not "educated" unless he has taken a foreign language.

Emphasis

The emphasis of the Ph.D. program on research or lack of research is the subject of many books, publications, and seminars. There have been many suggested answers, all, as I can ascertain, meeting with little agreement in educational circles. My observations are not new, but rather the way I see this problem at CSU.

I believe that one of the most important goals of graduate education is the training of teachers. The Ph.D. program does not meet this need in many cases and perhaps should not. With the emphasis on research and original work, the aspiring teacher loses much valuable time in graduate school which could be used to further his understanding and enhance his grasp of fundamentals or other core materials in his field. I don't want to leave the impression that research is bad. I believe it is a valuable learning experience.

If a student is preparing for a career in pure research or for a consulting position with an industry, then the Ph.D. program which stresses original research and the ability to develop new ideas is a program which meets this need. However, for a student who is planning on teaching perhaps even at the upper division level of undergraduate colleges or the masters level in graduate schools, the Ph.D. program which emphasizes research may be more harmful than beneficial. A certain amount of research is necessary training for this student so that he will be able to solve new problems which will certainly arise in an academic atmosphere. But I believe some of the time spent trying to write an original dissertation to meet Ph.D. requirements can be better spent taking more coursework and actually preparing to teach.

I would suggest loosening the requirements of the dissertation to include expositories and surveys of materials in the student's major field of interest. This type of dissertation could be very useful for teaching purposes and also help the student understand that particular topic. For example, a friend of mine in mathematics is writing his dissertation in topology. This study is an attempt to collect all counterexamples known in topology and perhaps present others that he has derived. Even if he is unable to derive any new examples, I believe his dissertation will be very useful in teaching topology and at the same time help him become better acquainted with the field.

Many people will say the program I have described is the Ed.D. Degree. Perhaps it should be but I don't believe the majority of the Ed.D. programs require as much coursework in the field of concentration as I would. From my limited exposure to this situation I have found that a teacher who has a Ph.D. Degree and is well known in his field as a researcher is not necessarily a good teacher. In fact, with few exceptions they are very poor teachers.

My point is that a college who is looking for a teacher should hire the best teacher possible and reward him accordingly. If a college is looking for a researcher, then it should hire the best researcher and reward him accordingly. However, the best teacher may have an Ed.D. Degree and be penalized in salary, position and prestige. I do not think this is right. I have three suggestions which might help solve this problem: (1) require more courses in quantity and quality in the major area of interest for an Ed.D. candidate, (2) offer some type of degree for those students who are affectionately referred to as having their A.B.D. I have noticed that several Big Ten schools are attempting to do just that, and (3) as I have said before, loosen the requirement of the Ph.D. dissertation for those students who wish to be teachers. As I jump from the trying pan into the fire, I want to make one point clear. I am not advocating that a good teacher who is unable to participate in research should have the same standing as one who is both a good teacher and a good researcher. Rather, that the good teacher who is poor in research should be rewarded as well as and be able to move up in position as rapidly as the good researcher who is a poor teacher.

These are my observations on what I consider to be the five main problem areas in rules and procedures of the graduate school.

TUESDAY, MARCH 5, 1968

FIFTH GENERAL SESSION

THEME: "The Organization of the Graduate School in the Seventies--Reactions to the COGS Pamphlet titled THE ORGANIZATION OF GRADUATE WORK WITHIN THE UNIVERSITY"

PRESIDING: Kenneth M. Rae, University of Alaska

ADDRESS: THE DEAN'S OFFICE

by: Halvor G. Melom
California State College, Long Beach

Most of the members of the Western Association of Graduate Schools are in a far better position than I to discuss the merits of the Council of Graduate Schools' pamphlet THE ORGANIZATION OF GRADUATE WORK WITHIN THE UNIVERSITY. Not only have many of you been involved with graduate work for more years but most of you have been involved in a university while my experience with graduate work has been in the California State College system. Any justification I may have for discussing such problems perhaps lies in the fact that the institution I represent is, in all but name, a university, and that we are in the process of organizing and developing a graduate school for the years ahead.

As an historian I can recall that at the opening of this century Mr. Hennessy could ask Mr. Dooley, "D'ye think th' colledges has much to do with th' progress iv the wurruld?" and have him reply: "D'ye think 'tis th' mill that makes th' wuther run?"

Mr. Dooley could not foresee the meteoric rise of science after World War II and the way it was drastically to alter the academic scene, bringing new respect for the role of the universities, and particularly graduate study, in the nation's cultural, economic, and scientific growth.

In that process Mr. Dooley's "colledges" lost their isolation, provided highly specialized personnel for industrial and governmental activities, as they were encouraged to systematically probe into and expand the frontiers of human understanding. The new status of the universities arose primarily from the strength of their graduate schools which, in their development, attracted outstanding students and support both from private institutions and governmental agencies. As one observer said, graduate education became the signature of today's university.

With but few exceptions graduate schools did not exist at the time Mr. Dooley made his remarks. Graduate enrollments have approximately doubled each decade since, and, in spite of problems developing today as a result of the war in Vietnam, graduate education in the seventies seems faced with continuing expansion. The supply of potential graduate students, and the demand for advanced degrees, can be expected to rise continuously. Many already sizeable universities will find the effectiveness of their graduate programs lessened if they are forced to expand, but, at the same time, the quality of graduate programs at many smaller institutions and those entering into doctoral programs, responding to the same forces, will be enhanced as they utilize their faculty, library, and plant to capacity.

It is within this context that I believe it is highly appropriate for this panel to discuss THE ORGANIZATION OF GRADUATE WORK WITHIN THE UNIVERSITY. The inevitable expansion of graduate education sets the need, and the Council of Graduate Schools sets the problem: the establishment of appropriately strong graduate schools in which acceptable graduate work can flourish.

The college I represent, California State College at Long Beach, does not carry the title of university and we do not now offer the Ph.D. Forming a graduate school has become a necessity as a result of surging enrollments which have raised our Graduate Division to over 6,000 since our founding in 1949. With more than 24,000 students our College ranks 23rd in the nation, surpassed only by Berkeley and UCLA in our own state. The California Legislature has not yet granted the State Colleges university status, but, as TIME remarked in January of this year, ". . .some of the free-wheeling state colleges justifiably claim they are better than many a public university elsewhere-and, in fact are bitter about their lack of university status."

Perhaps the reason for including a member of the state college faculties in this discussion of the organization of graduate work "within the university" doesn't need this sort of justification. Graduate work has been offered in the California State College system for more than twenty years and joint doctoral programs between the State Colleges and The University of California were recommended in the master plan for higher education in California. Two such degrees have been developed since 1960-one in chemistry between San Diego State College and the University of California, San Diego, in 1965, and the second in education, with emphasis in special education, between San Francisco State College and The University of California, Berkeley, in 1967.

It is, however, in this context that one can say that one of the weaknesses of the COGS pamphlet may be that it fails to proscribe the Alice in Wonderland organization of graduate work inherent in programs such as our joint doctoral with the University. There is every reason not to continue a structure of this sort which offers a Ph.D., as one state college president put it, containing "all the ambiguities of a mermaid, only with far less allure." After five years, and the development of only two joint doctoral degrees, there are rumblings within the California State College system. Chancellor Dumke has called for an independent degree, and San Diego State College, after long and patient attempts to implement more than one joint Ph.D. degree, is asking for a review of what has always been an indefensible process. It will help to meet the obvious need in the seventies for increased graduate education to recognize, in our State at least, that it will cost far less to develop graduate programs in the largest of our State Colleges rather than developing new university graduate schools or departments.

All institutions offering graduate work are called upon by the Council of Graduate Schools, through its pamphlet, to develop and have in being an organization capable of coping with the expected increase in graduate enrollments of the coming decades. To many it seems a statement of the obvious, but at least in our system it has not been achieved. Its strongest appeal lies in the fact that our best graduate schools have evolved within institutions following the organization suggested.

The need for a sound and strong internal graduate administrative structure in order to make it possible for a graduate faculty to effectively operate cannot be denied. It could be argued, however, that graduate schools may need to go further than to develop a good internal organization with a "smooth integration into the total university structure." The larger urban universities, confronted with the disruptive influences similar to those at work today, may find it necessary physically to separate the graduate school to maintain an atmosphere conducive to productive study and research. Whether such physical isolation is possible or not, the office of the graduate dean may well need to make specific preparation to accommodate open and candid discussion of the universities' graduate procedures and policies. Graduate students are now demanding recognition of their right to participate in the discussion of graduate policies on the decision making level, and admissions problems, fiscal problems, together with curriculum problems, are all being viewed by students as being within the realm of their purview. Whether graduate offices, in the present sense, are organized to deal with student demands on this level, could well be questioned.

The COGS pamphlet also stresses the tendency to strengthen the graduate dean's position by making him vice-president for research. The California State Colleges have been forced in the past to accept a false dichotomy between teaching and research and we have only recently been accorded recognition of the need for adjusted teaching loads, more clerical help, equipment and space for this prime concern. The research coordinator on my College's faculty is responsible to the graduate dean, and we recognize that if teaching is to be held at a high degree of effectiveness, research opportunities must be increased.

In the next decades as the public universities and the colleges become less and less able to accept more and more taks oriented research, the dean's office will also have to explore the possibilities of providing for non-teaching research in the private sector. When war ends industry in large urban areas will have the means of supporting such needs with their war developed plants and computer centers. For our urban institutions, which will be more and more concerned with research on problems of housing, civil rights, smog, transportation and similar matters, such contacts could prove doubly valuable.

California State College at Long Beach has experienced this kind of relationship in the sculpture symposium and the work of Piotr Kowalski. Here immense petals were formed by immersing huge stainless steel sheets in a large tank, carefully placing powder charges, and forming the petals with the water acting as a press. This had special interest to the airspace industry as a means of forming wings for the tremendous planes envisaged for the future where ordinary presses would be next to impossible to construct.

Warren B. Martin, former Provost of Raymond College, University of the Pacific, has said:

> "As liberal arts colleges try to become subversities, so state colleges set their sights on becoming universities, and now, within the last decade, universities aspire to join the multiversities."
>
> ". . .the prime need now in higher education is for men and institutions who have the courage to investigate possibilities for alternate futures, shape them into actual models, and put those plans to the test of practice."

President McIntosh of California State College at Long Beach has reviewed the pamphlet under our review, and, at the opening convocation this spring, stated:

> "I think it appropriate that we begin now our mutual efforts to organize the Graduate Division as a Graduate School. More specifically, this September the Council of Graduate Schools in the United States, issued a statement which sets forth criteria or principles which characterize the organization of efforts of those graduate schools thought to illustrate the best performance. In short, the Council states 'In universities in which an acceptable, even sophisticated, graduate pattern has developed, the evolutionary process must have been slow and often painful. In those new--and some older--universities in which only a rudimentary graduate organization exists, it will require something in the nature of a minor revolution to establish an appropriately strong graduate college (or school) in which acceptable graduate work can flourish.' Having been for so long a part of an institution in which minor revolutions are a way of life, the statement does not disquiet me. There are much more discouraging statements in print somewhere--though I have thrown them away and cannot quote them accurately now--proving that we cannot do what we have already done. So there is no reason to delay longer those discussions which will lead to the formation of a graduate faculty, a graduate council and which will bring to bear upon our considerations those comments of the Council of Graduate Schools which, if heeded, may serve us well in the years ahead."

Hopefully, the organization of the dean's office at my institution may be such that in the seventies it will be prepared to meet the problems with which it will be faced and, as President McIntosh has indicated, this statement by the Council of Graduate Schools has been helpful not only in suggesting the critical need for classing this as a prime concern, but also in making constructive suggestions which can be implemented.

ADDRESS: THE DEAN'S OFFICE

by: Henry P. Hansen
Oregon State University

It is interesting to note the cyclic pattern of topics and problems discussed at meetings of Graduate Deans for the past twenty years. Most of the emphasis seems to have been placed on foreign languages, the function of the Graduate School in the training and preparation of college teachers, modification of advanced degrees and the need for new intermediate degrees, and foreign students. Undoubtedly this repetitive pattern of discussion and deliberation has produced many desirable changes in the aims and outcomes of graduate education, which in turn has changed the functions and organization of the Dean's office. Inasmuch as the impending and projected changes in the decade of the seventies have some relation to past development and evolution of graduate education and graduate schools in the United States, it would not seem to be out of order to briefly mention some of these. It is rather significant that during the seventies we will see the centennial of the organization of the formal graduate school as an integral part of the American higher education. It is noteworthy that the first formal graduate school was organized at John Hopkins University in 1876. While graduate work has long been a tradition in the American University and the scholastic bases of the graduate degree had been established, there seems to have been no formal setup to formulate and administer graduate policy. Graduate education consisted of the major professor and his student, and when the student knew as much as his professor, or perhaps the professor had taught his student everything he know, and assisted him in discovering a segment of new knowledge (the dissertation), the student was considered to have earned his doctorate degree.

After World War I, there was a great increase in undergraduate enrollments which provided the baccalaureates for increased emphasis on graduate work, much of which was to provide college and university teachers. New graduate schools rapidly developed so that by the end of the twenties, all the large universities, both public and private, had strong graduate schools. The period of the twenties and thirties saw the emergence of the graduate dean's office as a significant part of the university administration, and the prestige of the graduate dean was greatly enhanced. Research and scholarship became the mark of the great graduate school, and the graduate dean was usually an older member of the staff who had distinguished himself as a scholar, primarily in the basic fields. His job consisted largely of running the routine of the graduate office and setting and maintaining standards. The depression of the thirties saw graduate enrollments slump and the number of advanced degrees decline, while during World War II, graduate enrollments became almost negligible.

The return of the veterans after 1945, graduates as well as undergraduates, swelled graduate enrollments and the technological advances during the war resulted in great emphasis on research. In the early fifties, the participation of the federal government financially in both research and support of fellowships and traineeships raised the prestige of graduate education to an all time high. The old fashioned graduate dean suddenly became concerned with the administration of research funds from many sources and also in charge of the allocation of fellowships and their administration on the campus. For the first time in the history of graduate education, the graduate dean's office carried weight and control over considerable funds which provided him a new and prestigious stature in the total picture of the University. He became involved in activities outside of the basic problems of scholarship. Budgets, institutes, centers, off campus graduate work, trips to Washington, and international programs became a part of his routine. This resulted in the need for Associate and Assistant Deans, Administrative Assistants, and more office space in order to expedite functions and operations of the graduate dean's office.

As the magnitude of duties of the dean increased, the involvements became more complex, and the research funds became astronomical in the larger universities, resulting in the need for more fiscal finesse in handling the funds, and separate offices with "vice presidents in charge of research and grants" were established. Other functions of the graduate office resulting from burgeoning enrollments and involvements, both academic and outside, were shunted to new offices with new titles of vice presidents, deans, and directors, and the dean's office once again became largely concerned with the standards and quality of graduate work. In the medium sized graduate school, the dean's office is still concerned with grants and fellowships, while in the smaller developing graduate schools the dean may be concerned with a host of functions not directly concerned with the graduate routine.

Continued evolution in the graduate dean's office into the seventies may well see considerable functions and routine perverted to other units. As the major divisions of the education units expand, the multiuniversity may be divided into self contained administrative units including graduate programs all the way through the doctorate and even the post doctorate. The development of large departments causes them to see advantage in being autonomous from the rules, regulations, and requirements as administered from the graduate dean's office. Faculty senates and councils already are assuming control of certain aspect of graduate administration which were considered to be inherent in the dean's office. The foreign language requirement has all but been lost, and the trend is for the department or the student's doctoral committee to determine the requirement. Faculty and student unrest, and increased permissiveness on the part of the university administration have placed the Dean's office and position in an increasingly precarious and anomalous position.

As we approach the seventies, it appears that the graduate dean's office will become less and less involved with the overall picture of graduate work in the university. Segments of control will be scattered across the campus, graduate programs will be centered in the schools, colleges, or divisions of the university who may administer and control their own graduate programs. By the centennial of the organization of the formal graduate school in 1976, the graduate dean's office in the larger universities as we know them today may well be extinct. If not, the graduate dean's position will be reduced to one of impotency so far as control of the basic and inherent functions of the office are concerned. To you who will still be in the graduate dean's office at that time, good wishes and the best of luck.

ADDRESS: THE GRADUATE DEAN: HOW TO BE USEFUL AND KEEP OUT OF THE WAY

by: Sterling M. McMurrin
University of Utah

In considering the future of graduate education, it seems to me that the chief question which the graduate dean must face is how he can keep out of the way and at the same time be moderately useful.

Florence Nightingale held that whatever else a hospital might do, it should not be a place for the spreading of disease. And in approval of this principle, Bertrand Russell has insisted that although the study of logic cannot be expected to make a person more a person more logical, at least it is to be hoped that it will not make him more illogical. I hold a similar view on graduate schools and graduate deans. Whatever we do in the future, let's hope that we do not seriously impede the advancement of learning. Otherwise, our species may become extince even sooner than some of us presently anticipate.

With this in mind, I have four suggestions: two on how we might be useful--and two on how we can more effectively keep out of the way.

Our most useful activity, it seems to me, is not in establishing and administering regulations, because the more we regulate and administer the more we are likely to get in the way. It is, rather, the somewhat elusive and ambiguous task of encouraging and stimulating innovation and experiment for the improvement of advanced education.

Among the races of men, none is more bound by convention and habit or more impervious to the need for change than the race of educators. If education were as amenable to innovation and experiment and change as American industry, its productive capacity for quality might have improved over the past few years in a magnitude comparable to the growth in the quantitative capacity of industry. There are indications now that elementary education is coming alive and there is the promise of a genuine revolution in lower education generally that may eventually change the lives of millions. But remarkably little is done to improve higher education--and the higher the level the less is done.

Nowhere can one find a more hidebound conservatism and irrational resistance to new ideas and change than in a university faculty. I would not advocate change for its own sake. There is much in our techniques of graduate education that should be preserved. But to suppose that we cannot improve both the quality and quantity of graduate education through more effective means of instruction, for instance, is to turn our backs upon the possibility of progress where progress is sorely needed. We can find in our graduate faculties some who are still complaining that our universities are not organized like the French universities of the late middle ages, or others who insist that what was good for the Germans in the nineteenth century must surely be good for Americans in the twentieth.

I have little faith in the innovative capacities of faculties taken as a whole. Allowing for notable and admirable exceptions, our faculties in general are ridden with individual self-interest and departmental jealousies that neutralize most efforts to introduce new ways of thinking and doing the job of higher education. Those individuals and small groups among them who are really capable of moving things along are up against difficult odds. The administration is obligated to take a serious hand in stimulating both thought and action in the faculty if anything is to be done on a scale large enough to make a difference. There can be no blueprint for innovation. But there can be leadership in bringing a faculty to see both the value and necessity of innovation. A faculty generates countless ideas which deserve consideration and support but which die aborning largely because of the over-all institutional inertia. We are experiencing rebellions of the faculties against the administrations. What we need now are a few administration rebellions against the faculties to see if we can get more of them off dead center in their educational practices.

The housekeeping functions of the graduate office should be taken for granted. Someone has to keep order, tie the future to the past, and keep custody of the regulations. But leadership in the graduate office should be judged not in terms of activism, but rather in terms of the quality and effectiveness of education, and this means generating and encouraging new attitudes and ideas.

The second way we can be useful in the fole of educational leadership is related to the first. It is in spreading the gospel of pluralism. Here is my reaction to the COGS pamphlet on THE ORGANIZATION OF GRADUATE WORK WITHIN THE UNIVERSITY, the subject of our discussion. This is a useful document--but it commits a fatal error. In some ways it is too doctrinnaire and prescriptive. It not only tends to assume that graduate work in the future should more or less follow the format of the present--it seems to say that there is a single best way of going through the educational motions, and a single best set of motions. The pamphlet does not quite say this. But this is its general impact, and I find it quite disappointing.

It seems to me that what we need is encouragement for diversity and difference. It is not simply that there is error in sameness or virtue in uniqueness, but that we should have an open-ended enterprise that generates efforts to improve the quality of education in part by avoiding any tendency toward standardizing or freezing the organization of the graduate school, the prescriptions for degrees, or the general principles and specific regulations and procedures of graduate education.

There is need for inter-institutional communication and cooperation and national perspectives and possibly even national standards in graduate education. But there is no best way of going about this gigantic task--no best way to do anything in education. Our best bet is to encourage individuality in education as the most firm foundation for a pluralistic society.

To return to my two suggestions on how we can keep out of the way--they are closely related to matters of educational innovation and institutional pluralism. It seems to me that we should keep out of the way of (1) the individual student and (2) the faculty.

We should not keep out of the way of students and faculty by doing nothing--but by doing something. By generating principles and operating techniques that provide a maximum of individualization in the education of the individual and a maximum of open-ended flexibility in the function of the graduate faculty.

Elementary education, and to a lesser degree secondary, are on the threshold of a major breakthrough in the individualization of education--a breakthrough that involves a conjunction of technical instructional equipment, radical staff reorganization, curriculum reforms, and architectural innovation. But at little or no cost, graduate education can be individualized to a far greater degree than is common--through the expedient of liberal regulations that not only permit but require the student's program to be fashioned to fit him, even to the language requirement, rather than simply to fit habitual notions as to what a Ph.D. degree must entail to be respectable. I am arguing not for lower standards but for standards that will make graduate education more valuable by making graduate schools more viable.

As for the faculty--the problem is the same. The distortion of the unity and continuum of knowledge by the departmental administrative structure is probably the chief academic evil--however necessary it may be. But it can be partially overcome in graduate education by policies which break through the typical restrictive regulations and habitual practices of the past to release the faculty to work out cooperative programs in contempt of departmental and traditional lines. This does not mean anarchy. It can be done in an orderly way--if the pattern of order is broad enough to provide in fact the flexibility of planning and freedom of action which academic people like to discuss but usually shy away from when the chips are down.

Again, to achieve these results takes positive action. If a graduate dean is to aviod impeding the progress of education, he must in some way generate and implement policies which are conducive to a maximum of freedom in education--freedom for the student and faculty to move around in whatever direction their conbined judgment indicates to insure a program of maximum worth. The chief impediment to such freedom may be the faculty itself because faculties are so often afraid of novelty and change and prefer the security of the old to the adventure of the new--that's why it takes positive planning and action. And such an enterprise cannot hope to succeed without both faculty and students of high ability and sincere commitment to learning.

With the world collapsing around our ears, we need a few absolutes to provide meaning and quality to life and to guarantee some stability in our values. And the graduate school is not a bad place to locate one or two of them. But the absolutes we need in the graduate school are not frozen formats on organization or hard and fast requirements for the Ph.D. Rather, they are Dean Whitaker's love of truth and commitment to intellectual integrity.

ADDRESS: THE ORGANIZATION OF GRADUATE WORK WITHIN THE UNIVERSITY SCHOOL OR DIVISION

by: Raymond P. Whitfield
Eastern Washington State College

As you note, I am the last speaker on the last panel. Perhaps I should, for the benefit of all our members, be allowed the prerogative of explaining why I should be speaking last--or at all. The reason is quite simple: Wytze Gorter, our program chairman, and I have been friends for more than twenty-five years, and, as he assured me this morning at breakfast, he takes care of his friends. In view of the fact that Dean Gorter will be our president during the coming year, I thought you might find this information worth remembering.

The real difficulty about this anchor position on the program obviously is that everything has been said. Dean Melom's careful analysis contained much of what was included in my original manuscript; Dean Hansen's droll remarks added the tonic we need when we become too concerned about our responsibilities; Dean McMurrin's challenge to respond to the present and the future is particularly appropriate to the once inviolate graduate tower of the academic castle. Thus, I can only say of my own presentation that it will be unique because it is last.

To begin with, I am ignorant of whom the writers were or of the precise task delegated to them. I never fully realized how important it is to know who is involved before I saw a layman obviously drafted into conducting a church service deep in the wheat hills of the Palouse rise determinedly and say, "Let us worship--uh--GOD." It is never made clear whether the assignment was to provide (1) a resume of organization as it is, or (2) a model of what should be now, or (3) some guidelines for what might be in our rapidly changing future. It is obvious, however, that the writer(s) concentrated almost entirely upon the first of these three possibilities.

Looking at the document for what it has done, I want to express appreciation for some good advice it offers to developing graduate level institutions. The formal steps for consideration of new doctoral programs are wisely conceived, clearly outlined, and equally useful in the development of master's degree or Ph.D. programs. The emphasis upon excellence gives deserved recognition to the role of graduate faculty as the prime defenders of quality scholarship. The emphasis upon research seems realistic for large universities and points to new directions for those currently developing. Furthermore, the resume of where we are is the first step in determining where we ought to be now or in the future. Therefore, within the limitations of the assignment undertaken, the statement has definite merits.

Despite these merits, and others which also deserve mentioning, the document has shortcomings which perhaps will be considered in forthcoming publications. The matter which struck me most forcibly was the description of organization or form without adequate attention to function or purpose. Charles M. Grigg in his book Graduate Education[1] points out that, "When one begins to pursue the historical developments of the organization of graduate education, one feels he is chasing shadows. Little thought was given to organization during the initial stages," etc. As Grigg--and for that matter, our COGS booklet and a host of others--continue to describe the amorphous role of the graduate dean, the reader becomes convinced that a seriously planned marriage between purpose and organization has yet to be consummated. In past years graduate schools have generally been insulated from widespread criticism, but historical precedent makes it safe to predict that the expanding popularity of graduate education will increasingly bring it under public examination. At the same time, competition for public funds needed by the schools, the mushrooming junior colleges, and the undergraduate institutions will increase. Before long, this oft delayed marriage will take place when we are forced to explain to ourselves and others what we are supposed to be doing and how well we are doing it. We cannot continue simply to take research for granted, to leave goal of scholarship largely unexamined, and to ignore the possibilities and problems of the growing service function.

Another point I question is whether all our graduate schools are organized as similarly as the statement implies. Do all councils meet once per month? Is the dean always chairman? Are the duties of the dean's staff always arranged in the same pattern? The answer to all these is obviously to the negative. A brief review of institutional variations or of recent innovations resulting from added responsibilities would provide information at least as useful as an essay on the status quo.

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[1] New York: The Center of Applied Research in Education, Inc., 1965, p. 25.

The fact that the document was oriented to the past may account somewhat for the failure to examine purpose along with organization; it also accounts for a neglect of several pressing issues which will certainly affect organization in the years to come--and I suspect that some other relatively innocent graduate deans like myself are wondering how to organize if we are to cope successfully with them. A few of these "monsters" which have already entered the academic structure and are now climbing the stairs to our offices are:

1. How can we organize graduate school responsibilities against the day when the number of students in graduate schools approaches those now enrolled as undergraduates? Will the graduate school, as an all college agency, emerge as a strengthened unit of administration, or will its function be distributed to the various schools or divisions?

2. As the knowledge expansion accelerates, how will the graduate schools, separately or cooperatively, determine the nature and limits of their responsibilities?

3. Will such factors as growing competition for scholars, increasingly sophisticated equipment, new teaching technologies, emerging computer science, the rise of super boards and economic factors lead to a new kind of graduate school reorganized on an inter-state and international basis? If I were not a creature well habituated to my own academic comforts, I might (now that I'm in Denver) seriously question whether my own state might do better not to support a separate graduate school at its five institutions, but rather to distribute opportunities for students by forcing cooperative use of staff and resources among the five institutions. Perhaps two or three graduate schools dispersed among our institutions would improve services.

4. Will the present focus upon Ph.D. training along disciplinary lines be changed by social demands for manpower highly trained in breadth or in unconventional ways? How can we organize to reproduce those not of our own kind?

5. What can the graduate schools do to provide greater numbers of excellent instructors for the B.A. granting institutions and the community colleges? Is reorganization necessary if we turn more attention to developing teacher-scholars as well as researcher-scholars?

6. Whatever changes may occur in organization, will they be the results of further decades of "muddling through," single institutional choice, cooperative graduate school efforts, legislative requirements, WAGS or COGS leadership?

In conclusion, we know fairly well how the graduate school has been organized in the past. In fact, borrowing Dean Hansen's story about the posture chair, I suggest that many of us may have posture chairs of various sorts in our offices, and some of them may date back not only to our predecessors, but as far as the year 1200. However, the past itself has been dissipated and all

we have left is the future. Old patterns of organization are more likely to result in defenses of past practices than in answers to tomorrow's demands. It is my belief that we can make the needed organizational changes--but not without effort and opposition. For those who doubt this, let me close with some words of solace attributed to Diogenes which may be comforting as you leave the conference and return to your daily tasks. He said: "Bury me face downward--soon everything will be overturned."

SIXTH GENERAL SESSION

BUSINESS MEETING

The meeting was called to order by President Wesley P. Lloyd at 10:45 A.M. Tuesday, March 5.

President Lloyd announced the latest developments concerning draft policies. Discussion from the floor:

> Dean Whitaker, Stanford, announced that President Arlt of CGS is now circulating a position paper.
>
> Assistant Dean Frank Johnson, University of Utah, stated that the director of the Utah State Selective Service was invited to meet with the Graduate Council of the University concerning requests for deferment for graduate students. Copies of any letters sent to congressmen should also be sent to Congressman Rivers, Senator Russell and President Arlt.

1. The minutes of the Ninth Annual Meeting were approved as published in the PROCEEDINGS.

2. The Treasurer reported receipts of $1427.81 (all members paid up), expenditures of $989.55 and a cash balance December 31, 1968, of $2395.86. It was moved, seconded and carried unanimously to accept the report.

3. The Resolutions Committee consisting of Deans James F. Short (Chairman), Ralph B. March, Edwin H. Randall, and Phyllis W. Watts presented the following report:

   I. WHEREAS the 1968 meeting of the Western Association of Graduate Schools was held in Denver, Colorado, March 3-5, 1968, with the host institutions being the Denver area graduate schools,

      NOW THEREFORE BE IT RESOLVED that we express our appreciation to Dean A. Ray Jordan, Colorado School of Mines, who served as chairman of the committee on local arrangements and to his committee, and in addition

      BE IT RESOLVED that we express our appreciation to Mrs. Lois Jordan, Mrs. Alice Bragonier, Mrs. June Reynolds, Mrs. Viretta Miller, and Mrs. Ann Crowe, whose gracious hospitality to the wives of the deans increased their enjoyment of Denver and its environs, and to Dr. John Greenway of the University of Colorado on his program of U. S. folk music.

II. WHEREAS the program of the 1968 session of the organization has been informative and stimulating to those in attendance,

NOW THEREFORE BE IT RESOLVED that we express our appreciation to the program committee, and in addition

BE IT RESOLVED that we express our thanks and appreciation to those individuals not members of this association who gave of their time and substance to contribute to graduate education by attending and participating in these meetings.

III. WHEREAS, the facilities of the Brown Palace Hotel have been made available to the Western Association of Graduate Schools at their tenth annual meeting and the staff has been unusually helpful.

BE IT THEREFORE RESOLVED that the secretary be instructed to relay to the Brown Palace Hotel management and staff the gratitude and appreciation for all services rendered.

IV. BE IT RESOLVED that the Western Association of Graduate Schools requests the Council of Graduate Schools in the United States to institute a study of the names, meanings, and abbreviations of graduate degrees for the purposes of (1) identifying the logical divisions among the various types of advanced study, (2) eliminating variations in the designation of comparable programs, and (3) reducing and ordering the present myriad of names and abbreviations in use.

V. WHEREAS, 1968-69 undergraduate enrollments in colleges and universities will be approximately 10% higher than were those of 1967-68;

WHEREAS, the national shortage of college teachers has long made it impossible to man undergraduate courses without drawing heavily on graduate teaching assistants;

WHEREAS, federally supported research undertaken for the national welfare depends on a large force of graduate research assistants;

WHEREAS it is estimated that the present draft regulations will reduce substantially the number of graduate students available to perform these essential functions and will make it extremely difficult for colleges and universities to perform their responsibilities in the national interest;

WHEREAS, a two-year delay in the production of academic personnel will create an even greater shortage of the personnel needed to provide for returning veterans two years hence;

WHEREAS, it is reported that military leaders contend that a high concentration of older and highly educated service men does not make for the most efficient armed force;

WHEREAS, any designation of critical fields of study would seriously imbalance the supply of highly trained manpower for the national welfare;

WHEREAS, we believe that these effects of present draft regulations are not in the national interest; therefore

BE IT RESOLVED: That the Western Association of Graduate Schools urges the Congress of the United States to enact legislation to institute random selection for the draft, as proposed by the Council of Graduate Schools in the United States, and by other associations of higher education;

AND BE IT FURTHER RESOLVED that the Secretary of the Western Association of Graduate Schools be instructed to forward this resolution to appropriate chairmen of congressional committees.

It was moved, seconded and carried to approve the above resolutions.

4. Election of officers nominated by the Executive Committee.

PRESIDENT: Wytze Gorter, University of Hawaii, becomes President at the close of this Business Meeting.

PRESIDENT-ELECT: George P. Springer, University of New Mexico
It was moved, seconded and carried to close nominations.
A unanimous ballot was therefore cast for Dean Springer.

MEMBER-AT-LARGE of the Executive Committee for a term to end at the annual meeting in 1970: Philip M. Rice, Claremont Graduate School
It was moved, seconded and carried to close nominations.
A unanimous ballot was therefore cast for Dean Rice.

5. Outgoing President Wesley P. Lloyd turned the gavel over to Wytze Gorter who then adjourned the meeting at 11:29 A.M.